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THE FLOODS OF JULY, 1916

HOW THE SOUTHERN RAILWAY ORGANIZATION MET AN EMERGENCY

The Southern may be possessed by seventy times the seven devils that a certain type of politician is fond of attributing to it, but it is A railroad — capital A, number One. * * *

The Southern is big, has always been big. * * * But this matter of size has seldom been demonstrated more strikingly than when this gigantic problem of the flood suddenly confronted it, and the Southern rose with a giant's strength to wrestle with and speedily to overcome the menace. It is a big system, run by big men, in a big way; and with all its faults we wouldn't swap it for anything in this neck of the woods — (Greensboro (N. C.) *News*, August 11, 1916)

SOUTHERN RAILWAY COMPANY

OFFICE OF THE PRESIDENT

1917

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TO THE
"MAN ON THE JOB"
THIS BOOK IS
DEDICATED
BY ONE WHO ADMIRES HIM

F. H.

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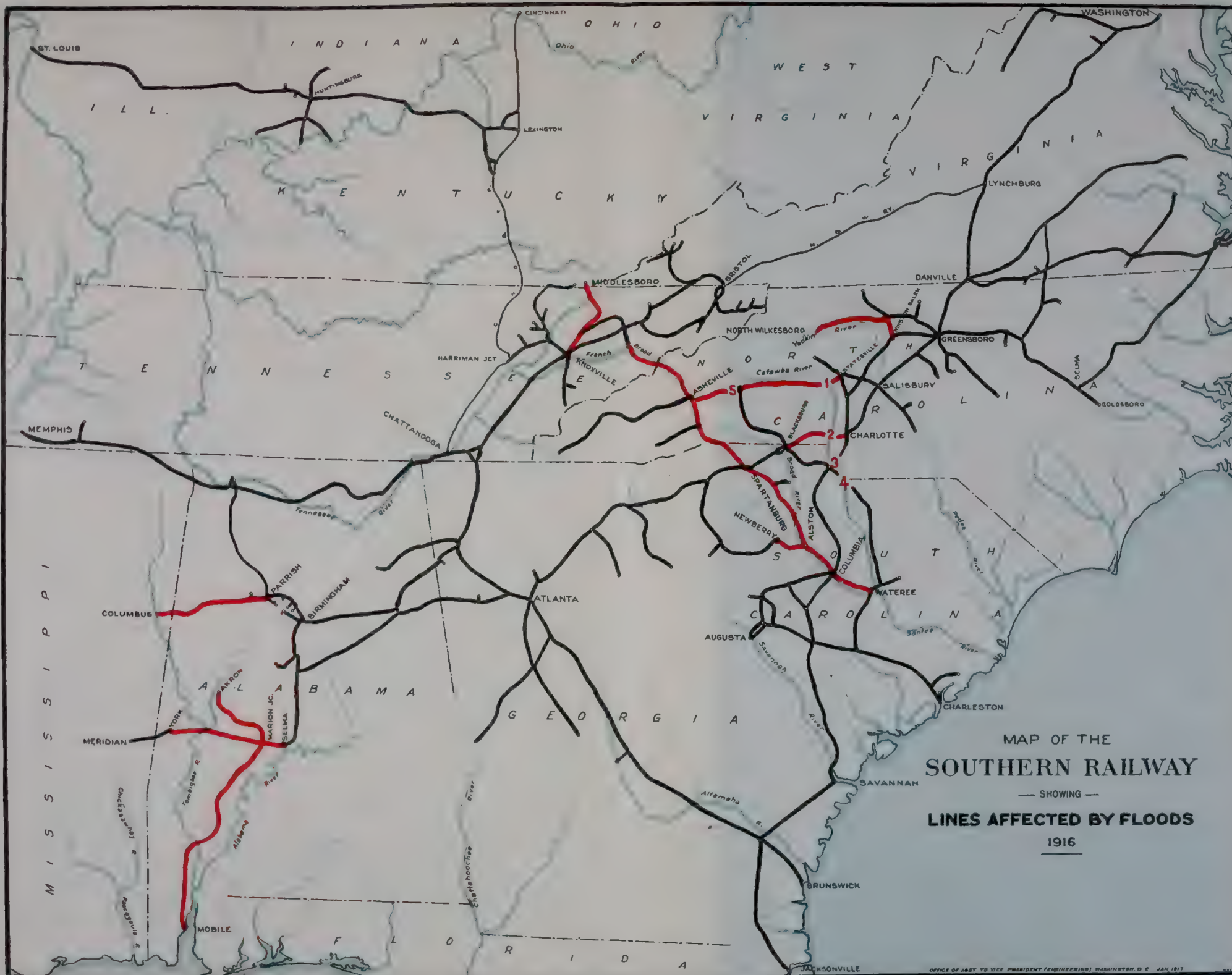
INTRODUCTION

"Doubtless it will be pleasant to remember these perils hereafter," wrote a Roman poet nearly two thousand years ago. We of the Southern Railway organization can echo the sentiment today, for perils and adventure experienced in company have ever been strong bonds to bind together a group of men in action.

In July last we were called upon to show in a sudden emergency what we could do as individuals and even more as an organization. It was my official privilege to express at the time a word of appreciation upon a great achievement, but in order that there may be a more permanent record of what was done and of those who did it, we have collected the facts in the following pages. The editor is Mr. J. C. Williams, Assistant to the President, and I am sure that all whose deeds are recorded, as well as others who may be interested, will join me in congratulating him on the result of his work.

FAIRFAX HARRISON.

Office of the President,
Washington, D. C.,
January, 1917.



Heavy red lines show railroad put out of operation by floods of July and August, 1916.
 "1" Bridge across Catawba River near Eufola, N. C.; "2" Bridge across Catawba River near Belmont, N. C.; "3" Bridge across Catawba River near Fort, Mill, S. C.;
 "4" Bridge across Catawba River near Catawba Junction, S. C.; "5" Bridge across Catawba River near Greenlee, N. C.

THE FLOODS OF JULY, 1916

The lines of Southern Railway Company suffered unprecedented damage from floods during the months of July and August, 1916.

On July 5th and 6th a tropical cyclone swept over the Gulf Coast of Alabama, accompanied by high winds, reaching a maximum of 107 miles per hour at Mobile on the fifth, and followed by torrential rains over a large part of the State, with somewhat lighter rains in eastern Tennessee and the Carolinas, greatly damaging Southern Railway waterfront property at Mobile and interrupting traffic on the Company's lines in Alabama south and west of Birmingham, by washing out trestles and fills.

A second tropical cyclone passed over Charleston, S. C., during the morning of July 14th, causing some local damage, and, moving northwestward, expended its full force on the watersheds in western North Carolina where the rain from the first storm had already saturated the soil and filled the streams bank-full. All previous 24-hour records of rainfall in the United States were exceeded. The run-off from the saturated soil was very rapid, streams rose high above all previous flood records; resulting in the death of about eighty persons and in property damage estimated by the United States Weather Bureau at about twenty-two million dollars.

The greatest single loss of property was that of Southern Railway Company, as, without taking into account the loss of traffic and the cost of detouring trains, the total loss to the Company on account of storm damage during the month of July is estimated at approximately \$1,250,000.

THE UNITED STATES WEATHER BUREAU'S RECORD OF THE FLOODS.

An account of the floods, written by Professor Alfred J. Henry, of the United States Weather Bureau, says, in part:

"The immediate cause of the destructive floods in the East Gulf and South Atlantic States was the movement over those States of two tropical cyclones.

"The first of these storms passed inland over the Mississippi coast during the night of July 5-6, 1916, and moved slowly a little west of north to about the thirty-second parallel of north latitude, thence it followed a somewhat sinuous course a

little east of north for several days. Finally by the morning of July 11th, it had become a disturbance of such feeble intensity that its future course could not be followed. * * * As this storm drifted over northern Alabama and eastern Tennessee its sphere of influence extended across the Appalachians into the Carolinas, the mountain districts of which received heavy rains.

"Almost immediately a second tropical cyclone moved in from the Atlantic, passing over the coast of South Carolina on the morning of July 14th, 1916. During that day torrential rains fell on the lowlands a short distance northeast of Charleston, attended by high winds. By the morning of the 15th the center of the storm had reached western North Carolina. Beginning in the afternoon of that day, and continuing for 24 hours, unprecedented rains fell over the eastern slope of the Blue Ridge and also in the valley of the French Broad as it flows northward between the several parallel ranges of the Blue Ridge. The run-off from these rains by reason of the saturated condition of the soil must have been 80 or 90 per cent of the precipitation. Naturally, floods hitherto unprecedented occurred in both the Tennessee and Atlantic drainage. * * *"

After giving a detailed account of the Gulf Coast storm and the rainfall attending it from July 5th to 9th, inclusive, Professor Henry's account continues:

"With the gradual filling up of the cyclone that was the original cause of the rains, the amounts which fell on the 10th were not sufficient in themselves to cause floods, but they served to saturate the soil and to keep the streams at moderately high stages and thus to prepare the way for serious floods as soon as the downpour of the second storm was precipitated upon them. This storm, like its predecessor, was presumably of tropical origin, although but little information as to the position of its origin is available. It passed inland close to Charleston, S. C., on the morning of July 14th, 1916, moved thence slowly northwestward and dissipated over the mountains of western North Carolina on the 16th.

"The rainfall of this storm also was irregularly distributed about the storm center. On the 14th heavy rains fell northwest of Charleston in Berkeley, Georgetown and Dillon Counties. The fall in Dillon County was not so heavy as in Berkeley County. On the succeeding day, July 15th, when the storm center was over the mountainous region of western North Carolina, heavy rains continued over the low-lying regions of the northeastern part of South Carolina, especially in the line of counties along the right bank of the Great Pee Dee River—viz., from north to south, Chesterfield, Darlington, Florence, and Williamsburg. On this same date, 14th, heavy rains, 8 to 10 inches, were also recorded in western North Carolina at five stations. The climax in the intensity of the rains was not reached until two days later, on July 16th, at a time when the cyclonic disturbance was not noticeable on the daily maps of the Weather Bureau.

"Beginning during the afternoon of the 15th and continuing for 24 hours, the rains in the mountain districts of North Carolina were extraordinarily heavy. At a special orchard station maintained at Altapass, in the southeastern corner of Mitchell County, N. C. (altitude 2,625 feet above mean sea level), an actual measurement of 19.32 inches of rain in 24 hours was recorded in an 8-inch standard raingage. The

measurement was made at 6 p.m., July 16th, 1916. According to the observer, Mr. J. S. Bowen, between 2 p.m. Saturday and 2 p.m. Sunday, 16th, the rainfall here amounted to 19.32 inches as measured on the 16th, and about 2.90 inches of the rainfall measured on the afternoon of the 15th fell after 2 p.m., of that day, hence the 24-hour rainfall, 2 p.m. 15th until 2 p.m. the 16th, was about 22.22 inches. * * *

"The rainfall at Altapass Inn, about one mile from the orchard station and on the west side of the gap at about the same elevation, was also measured, the amount being 1.52 inches less than on the east side of the gap. Twenty miles to the westward, as at Cane River, Yancey County (elevation unknown), the 48-hour fall diminished to 3.32 inches, as compared with 23.22 inches at Altapass. Total 24-hour falls of more than 10 inches were recorded in the extreme western portion of Caldwell County on the eastern slope of the Blue Ridge, about 15 miles distant from Altapass. Torrential rains also fell in Avery County, immediately west of Caldwell County, and a second area of torrential rains is noted in western North Carolina: in the watershed of the French Broad at the stations of Blantyre, Brevard, and Hendersonville in Transylvania and Henderson counties, also in Macon County, in the extreme southwestern part of the State, where 9.92 inches were recorded at Highlands. It therefore appears that there were two distinct regions of torrential rains in western North Carolina on the 15th and 16th—one in Mitchell, Avery, and Caldwell counties, about 50 miles northeast of Asheville, the other about 20 miles due south of Asheville in Henderson and Transylvania counties.

"The precipitation after the 16th was insignificant.

FLOODS IN THE RIVERS OF SOUTH CAROLINA.

"The rains that attended the first storm did not begin over South Carolina until the 8th, and were not specially heavy, except over the mountain headwaters in North Carolina. The effect of these rains, however, was to saturate the soil and cause freshet stages on all the streams. These freshets had begun to decline when the second storm with its attendant rainfall overspread the State. The heavy rains of the second storm began over the watersheds of the Black, Lynches, and Great Pee Dee Rivers in the lowlands of the State and at a time when these rivers were comparatively low. Fortunately, the rains of the first, or Alabama storm, were not heavy over the lowlands of the Carolinas. * * *

"As the second storm moved inland over South Carolina on the 15th, heavy rains fell, beginning on the afternoon of that date and continuing for about 24 hours. It was to these rains that the disastrous floods in the upper tributaries of the Santee were due. On the 16th the Catawba at Mount Holly, N. C., had reached a stage of 3.5 feet above the previous highest record. On the 17th the flood crested at a stage of 45.5 feet (estimated, the gage having been washed away). That stage is 22.5 feet above the previous high-water mark.

"The Catawba rises in North Carolina in the counties of Caldwell, Burke, McDowell, and Avery, directly east of the Blue Ridge, and at an elevation of about 2,500 feet. It flows thence southeasterly as the Catawba in North Carolina and as

the Wateree in South Carolina, forming with the Congaree the Santee. The gradient of the upper part of the Catawba is steep, its profile showing a fall of about 2,325 feet in the 200 miles between headwaters and Camden, S. C. At the last-named point the zero of the gage is 175 feet above mean sea level. At the junction of the Wateree and the Congaree the water surface is probably not more than 100 feet above mean sea level. The steep gradient above 'the fall line' is a characteristic of all rivers of South Carolina, except the Little Pee Dee, Waccamaw, Lynches, Combahee, Edisto, and Black, which rise wholly within the Coastal Plain and flow directly into the Atlantic. The flood on the Catawba in North Carolina is perhaps the most severe of which there is record. At Mount Holly, N. C., the uppermost gaging station on the river, the crest was 22.5 feet above the previous high-water mark, viz., that of the 1908 flood. The excess of the next down-river station, Catawba, S. C., just inside the South Carolina border, was but 12 feet, and still farther down and about 200 miles from the headwaters an excess of but 3 feet above the 1908 crest was noted. The force of the current greatly abraded the banks of the stream, the width of which at moderate stages is now 50 feet greater than formerly, as determined by a recent inspection of three points, viz., Mount Holly, N. C., and Catawba and Camden, S. C. The lateral corrosion of the channel thus observed must have been due to the great increase both in the velocity of the stream and the load which it carried. It would be interesting to know in this connection to what extent vertical corrosion was effective in deepening the channel at the time the banks were so greatly abraded.

"It is a notable fact that in no other part of the United States are the forces of landscape sculpturing so active and effective as in the South Atlantic States, mainly because those regions more than others are subject to heavy precipitation and consequently frequent floods. Nowhere in the United States, so far as known to the writer, are the streams subject to such frequent and marked changes in volume and in the degree to which they are loaded as in those which have their source in the southern Appalachians.

"The Broad River at Blairs, S. C., exceeded the previous high-water mark by 5.4 feet. The Santee at Rimini, S. C., exceeded the previous high-water mark by 2.2 feet; at Ferguson by 1 foot. The Black at Kingstree, S. C., exceeded the previous high-water mark by 1 foot.

"The three main tributaries of the Santee which rise in the southern Appalachians are the Saluda, the Broad, and the Wateree, naming them in order from west to east. That one farthest west, the Saluda, was not in extraordinary flood since its watershed was a little outside the region of heavy rains.

"The rivers of South Carolina in their course to the sea pass through great swamps in the Coastal Plain. In times of flood vast quantities of water are impounded in these swamps. This explains in a way the flattening out of the flood crest as it passes to the lower reaches of the streams. It will be noted that at Ferguson, the lowermost station on the Santee, the excess of the 1916 flood over previous floods was only one foot, notwithstanding the great volume of the flood flow in the upper tributaries.

"There was a freshet in the Great Pee Dee, the farthest east of the larger rivers of South Carolina, on July 6th, and again on the 12th. The stage at Cheraw, S. C., on the 15th, was about 9 feet below flood. From this point it rose to 6 feet above flood on the morning of the 16th, and crested at 36.1, or 9.1 feet above flood stage, on the 19th.

FLOODS IN THE RIVERS OF NORTH CAROLINA.

"The floods in the rivers of North Carolina which drain into the Atlantic were not severe except in the upper reaches of the Great Pee Dee (Yadkin).

"West of the Blue Ridge all the streams flowing into the Tennessee were in severe flood, probably the most disastrous so far as loss of life and property is concerned being in the French Broad. Gagings in that river are made at Asheville, N. C. On the morning of the 9th, the river had reached a stage of 4.8 feet (flood stage, 4 feet), and by the morning of the 11th it had risen to a stage of 8.8 feet; it then declined until the morning of the 15th, when it stood at exactly 4 feet, or flood stage. The tremendous rains on the 15th and 16th in the watershed of the river caused it to rise with great rapidity. At 8 a.m., on the 16th, it stood at 13.5 feet, 9.5 feet above flood; by 9 a.m. of the same day, it had risen to 18.6 feet; and at 10 a.m. the bridge on which the gage was located was washed away. The crest of the flood was about 21 feet; the exact figures will be determined later. The width of the French Broad at Asheville at bank-full stage (4.4 feet) is 381 feet. At the time of the flood the width of the stream was said to have been a quarter of a mile. All industrial plants along the river were badly flooded, in some cases the water reaching the second stories of the buildings. The flood waters from the upper tributaries of the Tennessee made but a brief flood in the trunk stream at Knoxville about 149 miles below Asheville, where a crest stage of 30.2 feet, 18 feet above flood, was reached at noon of the 18th. At Chattanooga, about 180 miles below Knoxville, the crest was reached two days later, viz., on the 20th, with a gage reading of 30.2 feet, 2.8 feet below flood. Flood stages on the Tennessee below Chattanooga had been reached earlier in the month, but the flow from the upper tributaries due to the torrential rains of the 15th and 16th did not cause a flood stage in the main river below Knoxville, and at the latter place for a little less than three days only. * * *

LOSS OF LIFE AND PROPERTY.

"The precise number of persons who lost their lives in the floods will doubtless never be known, although the best information at hand places the loss of life at about 80, the great majority of whom were drowned in the streams of western North Carolina. Nineteen persons went down with the Southern Railway bridge at Belmont, N. C., on July 16th, and the majority of these were lost. There was also some loss of life along the Gulf Coast during the prevalence of hurricane winds,

but these have not been included in the above number. The property loss, as closely as can be figured, was near \$22,000,000, distributed as follows:

Tangible property, buildings, roads, bridges, culverts, etc.	\$4,917,574
Crops not gathered	11,606,128
Live stock and movable farm property.....	811,513
Suspension of business, loss of wages, etc.....	1,938,870
Railroads, in road-bed, bridges, trestles, culverts, etc....	*2,450,000
<hr/> TOTAL.....	<hr/> \$21,724,085

*Incomplete reports.

"Thus it is seen that by far the greater loss falls upon the agriculture of the region. The figures are probably incomplete and at best should be considered as rough approximations to the truth.

"The loss of crops was due in some cases to hurricane winds which swept over southeastern Mississippi and southern Alabama, attended by heavy rains; in the greater number of cases, however, the loss of crops was due to flooding, especially along the Cahaba and Alabama rivers in the counties of Perry, Dallas, Wilcox, and Monroe, Ala. In these counties approximately 250,000 acres of farm lands were inundated for several days, with a total loss of all crops thereon. The loss in these counties alone, figuring it at \$10 per acre, a not unreasonable figure, approached two and one-half million dollars.

"It is reported that in the counties of Greene, Perry, Forrest, George, Jackson, and Harrison, Miss., the loss to standing timber that was leveled by hurricane winds will approach \$3,000,000. These figures have not been included in the aggregate above given, since a portion of the timber may be recovered.

"In a few cases heavy loss by erosion has been reported, but it is believed that the gain from a deposit of silt, which must have been very general in the lower reaches of streams in the East Gulf States, will offset the losses by erosion.

"That agricultural interests have suffered greatly can not be doubted for a moment, although to what extent in some regions is problematical. The regions most affected by heavy rains and strong winds were southeastern Mississippi, a large part of central and southern Alabama, and parts of South Carolina directly north-east of Charleston, extending thence through the line of counties on the west bank of the Great Pee Dee to the North Carolina border.

"The damage in western North Carolina was largely confined to railroads, both steam and electric, industrial plants, public-service organizations, including water-power installation and other industrial enterprises.

"Too much credit can not be given the railroads in their effort to re-establish and maintain transportation routes in the face of grave difficulties. In a number of cases the only possible solution of the problem was a resort to the methods of primitive people, viz., the ferry operated by man power. Within a week, or 10 days at the utmost, travel was restored in a limited way, of course, between all important points.

"An interesting phase of the subject is the probability of the occurrence of a similar disaster in the future. Unfortunately, our present knowledge of the underlying causes of cyclonic storms, their distribution in time and space, is so indefinite that any discussion thereon must be largely speculative. It may be said, however, that the floods in Mississippi, Alabama, and Georgia were due almost wholly to a single long continued rainstorm which was closely associated with the passage inland of a tropical cyclone. Likewise, the floods of the rivers in the Coastal Plain of South Carolina, especially the Great Pee Dee, were due to the movement inland of a single tropical cyclone. The floods in the streams originating in North Carolina were due to the torrential rains of the 15th and 16th, coming at the close of a period of heavy rains that were associated with the first or Alabama storm. Tropical cyclones do not, as a rule, synchronize as did these two, and on that fact we would base our belief that a repetition of the storms of July, 1916, is not probable more than once in a century, at least."



TRAIN NO. 20. RUNNING THROUGH BACKWATER FROM THE TOMBIGBEE RIVER NEAR WAGAR, ALA.



TRAIN NO. 19. RUNNING THROUGH BACKWATER FROM THE TOMBIGBEE RIVER NEAR WAGAR, ALA.

THE STORMS IN SOUTHERN RAILWAY TERRITORY

How the Railroad and Bridges Were Rebuilt and Service Restored

Both of the July storms spent their force largely in territory traversed by Southern Railway lines, and heavy losses through the destruction of property and the interruption of service were inevitable.

The Gulf Coast storm, while of unusual severity and extent and although it interrupted service on some of the Company's important lines, presented no such difficult problems in reconstruction and the detouring of traffic as were presented by the later storm in the Carolinas. Although covering an unusual mileage, conditions were such as are met by the maintenance forces of all railroads in times of flood damage. Prompt restoration of service was merely a matter of getting to work as soon as the damage had been done, with ample forces and abundant equipment and materials, clearing away slides and repairing fills and trestles. The General Superintendent of the Southern District and the men under him may well be proud of the record they made. For many of them it was in the nature of a rehearsal of the drama of reconstruction in which they were to play important parts on a larger stage later in the month.

The storm in the Carolinas tested the efficiency of the Southern Railway organization to the utmost, and it came through the test in a way to merit the encomiums and congratulations of the President's General Order of August 11th.

As will be seen by Professor Henry's account, the regions of heavy rainfall in western North Carolina were either immediately along the lines of the Southern Railway in that section of the State or on the headwaters of rivers the valleys of which are traversed by the Company's lines, and the damage was far beyond that done by ordinary high water, amounting to the total destruction of many miles of railroad. The rainfall immediately along the railroad along the many small streams of the region was responsible for most of the damage done on the Asheville-Salisbury line between Catawba River and Asheville, on the Asheville-Spartanburg line and on the Transylvania Division. The damage immediately at Asheville and Biltmore, and on the North Wilkesboro line, while increased by local rains, was due more largely to the flooding of river valleys, and that done on the Knoxville-Morristown line and at the lower bridges across the Catawba was substantially all due to the river floods.

The Catawba River, draining east into the Coastal Plain, did the chief damage, sweeping away nine railroad and all of the highway bridges which spanned it.

Among these were four principal main line bridges of this Company on the radiating Asheville, Charlotte, Columbia and Charleston divisions. A fifth Southern Railway bridge across the Catawba, near its headwaters west of Marion was only saved by the washing out of both approaching embankments. The Yadkin River, also draining east, destroyed our North Wilkesboro line for sixty-one miles through the narrow valley traversed by its upper waters. The French Broad River, draining west through Asheville, wrought devastation upon the road-bed of our Asheville-Morristown main line which follows that river, but, fortunately, our new concrete bridge at Asheville dammed the debris and held, thus protecting the several steel bridges lower down the river. In all, 686 miles of the Southern Railway in North Carolina, South Carolina and Tennessee were put out of service by the second storm, and, adding the mileage put out of service by the Gulf Coast storm amounting to 140 miles, makes a total of 826 miles of railroad that were put out of service by the two storms.

The local storm on the Coster Division on August 3d put 69 miles out of operation, making the total 895 miles of the Company's lines that were put out of service by flood damage for longer or shorter periods during the summer of 1916.



TRESTLE APPROACH TO CAHABA RIVER BRIDGE,
MOBILE DIVISION.



FLOATING DRY DOCK WITH U. S. TUG "GULFPORT"
WASHED ASHORE AT MOBILE.

THE GULF COAST STORM

The Gulf Coast storm struck Mobile, Ala., at about 10 a.m., July 5th, with a wind velocity of approximately forty-five miles an hour, which increased until 6 p.m., when it reached the maximum velocity of 107 miles per hour. This high wind, rushing in from the Gulf of Mexico, swept the waters of Mobile Bay up into the relatively narrow Mobile River, raising this stream to an unprecedented height and overflowing the entire business section of Mobile, reaching a depth of thirty-one inches in the Gulf Terminal passenger station. The principal damage at Mobile was caused by the high wind and the wave action on the waterfront. Southern Railway piers 4 and 5, and the coal hoist, were badly damaged, and considerable damage was done to freight loaded on cars in the yards. The new freight station was above the high-water mark, and suffered little damage. Vessels in the harbor were wrecked by being battered against the piers, or were lifted on the crest of the tidal wave swept in from the bay, and driven by the wind, were deposited on the docks, or carried considerable distances from the river front. A floating dry dock, containing the United States tug "Gulfport," was lifted up bodily and deposited on the Municipal dock with the tug still in place.

The high wind at Mobile was accompanied by a rainfall amounting to more than seven inches in the twenty-four hours from 8 a.m., July 5th, to 8 a.m., July 6th, but this was not an important factor in the damage done in that locality.

As the storm swept inland, with high but decreasing wind velocities and increasing rainfall, the rivers of Alabama and Mississippi were soon raised above their banks, overflowing wide areas and interrupting railroad traffic by overflowing the tracks, causing land slides, and washing out trestles and fills.

The first line put out of service was that between Marion Junction and Mobile at 6 p.m., July 5th, and from that time until 9 a.m., July 8th, line after line went out, until service had been discontinued on practically the entire railroad south and west of Birmingham.

The repair of these damages presented no unusual problems, except those incident to carrying on work simultaneously over such a wide extent of territory. There was no unnecessary delay at any point. Needed materials were quickly assembled, and, under the direction of General Superintendent J. H. Stanfiel, with the intelligent support of Division Superintendents H. H. Vance, Birmingham Division; O. K. Cameron, Mobile Division, and E. E. Norris, Atlanta Division; Engineer of Maintenance of Way R. D. Tobien, and their forces, repairs were quickly made and service over all lines except one short branch line, had been restored at 9 a.m., July 13th. The magnitude of this task may be indicated by a summary of the damage on each division of the Southern District.

MOBILE DIVISION.

The line from Marion Junction to Mobile was the first on which service was interrupted at 6 p.m., July 5th, the principal damage being wash-outs near Satsuma, Wagar, Glendon and Bogue Chitto. Service was resumed at 4:30 p.m., July 11th, when the tracks at some points were still overflowed and the trains were operated through the water.

The line from Marion Junction to York was put out of service at 8 a.m., July 7th, by a wash-out near M. P. 27, between Marion Junction and Uniontown, and another near Lilita. Service was resumed at 12:00 m., July 11th.

The line from Marion Junction to Akron was put out of service at 8 a.m., July 7th, by small wash-outs of road-bed and trestles out of line on three miles of road near Marion. Service was resumed at 1 p.m., July 8th.

Service was interrupted on the line from Selma to Marion Junction at 9 a.m., July 8th, when the water was over the track from six to eighteen inches for a distance of two miles at the Cahaba River near Lake Lanier. The road-bed was badly washed the entire distance, and a trestle was washed out at M. P. 202. Service was resumed at 9 a.m., July 13th.

Damage on the line of the Mobile Division north of Selma was limited to several small wash-outs and slides.

BIRMINGHAM DIVISION.

The principal trouble and interruption of service was between Parrish, Ala., and Columbus, Miss., where service was discontinued at 4 a.m., July 7th, three trestles being washed entirely away, and twelve being badly out of line. The road-bed was badly cut at forty-two different places, ranging in length from 500 feet to 3,000 feet. Service was resumed on this line at 1 p.m., July 10th.

The Woodlawn-Bessemer Branch between Ensley and Valley Creek Junction was put out of service at 10:30 a.m., July 7th, on account of two feet of water over the track at Valley Creek and of the trestle washed out at Valley Creek Junction. Service was resumed at 1:40 p.m., July 8th.

The Short Creek Branch between Ensley and Maxine was put out of service at 8 a.m., July 7th, on account of five trestles out of line and small slides at different points. Service was resumed at 5 p. m., July 16th.

On the Flat Top Branch between Littleton and Porter, service was discontinued from 7 a.m., July 7th, to 6 p.m., July 12th, on account of slides.

Very little damage was done between Birmingham and Atlanta.

There were numerous small wash-outs on the Atlanta Division in the vicinity of Rome, Dallas, Austell and Dames Ferry, and several slight wash-outs on the Columbus Division, but there was no serious interruption of service on either of these divisions.



STEAMER : "CHARLES E. CESSNA" ASHORE AT MOBILE.



STEAMER "CITY OF MOBILE" ON THE MUNICIPAL WHARF AT MOBILE.



STEAMERS SUNK AT MOBILE.



U. S. BARGE "TWINING" ON THE MUNICIPAL WHARF AT MOBILE.



COTTON AND DEBRIS ON SOUTHERN RAILWAY TRACKS IN COMMERCE STREET, MOBILE.



DEBRIS ON SOUTHERN RAILWAY, MOBILE & OHIO AND LOUISVILLE & NASHVILLE TRACKS AT MOBILE.



COTTON SHED ON MOBILE & OHIO PIER NO. 2, MOBILE. OVER 11,000 BALES OF COTTON WERE WASHED AWAY.



SOUTHERN RAILWAY-MOBILE & OHIO PIER NO. 5, MOBILE, UNROOFED BY THE WIND.



BARGE ON SOUTHERN RAILWAY SIDE TRACK TO PIER NO. 5, MOBILE.



LEVER-CAR RUNNING THROUGH BACKWATER ON MOBILE DIVISION.



EROSION OF SOIL ABOUT THE RUBBLE WALL OF A WELL NEAR CHIMNEY ROCK, N. C.

THE STORM IN THE CAROLINAS

As is indicated in Professor Henry's account of the storm in the Carolinas, the heavy rainfall began on July 14th on the lower reaches of the rivers traversing the coastal plain of the Carolinas and moved inland with increasing intensity until it culminated in the downpour of July 15th and 16th on the watersheds of the head waters of these rivers and of the French Broad in western North Carolina. As a result of this, the rains on the coastal plain and in the Piedmont had run-off to a considerable extent before the crest of the high water had come down from the mountain regions; but the rivers were still at flood stage, greatly increasing the damage done when the crest of the flood came down from the mountains. But for this mountain flood the damage done by the rainfall in the Piedmont and coastal plain regions would have been slight.

The figures of the Weather Bureau showing the maximum rainfall of 22.22 inches at Altapass, the highest 24-hour precipitation ever recorded in the United States, give some idea of the enormous volume of water that fell over an area of hundreds of square miles and rushed down the mountain sides and into the rivers, carrying destruction on its crest. Trees, growing crops, houses, factories, bridges and other structures on the river banks and in the mountain valleys were swept away. Only the heaviest re-enforced concrete construction, like that in the Southern Railway viaduct across the French Broad River, west of Asheville, could withstand the force of the rushing flood and the debris and wreckage which it carried.

In the western North Carolina mountains the abnormally heavy rainfall which followed the Gulf Coast storm, amounting, at some of the Weather Bureau stations, to from eight to eighteen inches in the eight days ended July 13th, had completely saturated the soil and raised the level of all the streams. The water-soaked forest soil, with its large content of mica, was almost in a state of movement on the mountain sides, and the torrential rains of July 15th and 16th brought down successive avalanches, which swept away the road-bed, obliterating cuts and fills, on both of Southern Railway Company's principal trans-mountain lines. Railway fills were swept away by slides from the mountains, carrying with them trees and rocks. This whole mass of debris was swept into mountain ravines forming temporary dams which went out later, thus producing successive flood crests and increasing the damage on the lower water courses. An excellent illustration of erosion caused by the rains of July 15th and 16th is afforded by the accompanying reproduction of a photograph of a well near Chimney Rock, N. C. The soil above bed rock was washed away without seriously damaging the dry rubble wall of the well which was left standing with the well curb on top twelve feet above the rock.

In his booklet on the North Carolina flood, Mr. W. M. Bell, of Charlotte, N. C., prints the following graphic account by Mr. F. C. Abbott of the view from a point on the Asheville-Salisbury line, near Old Fort:

"Around the next turn we came to the river, and a complete picture of destruction was before us. Not only the railroad, but its very foundations, had been swept away for the best part of a mile. Some of the track is buried under tons of sand and rock, then rises over a solid wedge of trees and stumps, then swings gracefully down in a long loop over the river to an embankment, then disappears again entirely. From here to the top of the mountain at the entrance of Swannanoa tunnel there is one continual scene of destruction. At some places track and foundations have dropped entirely into the river, heavy concrete abutments are in some cases broken and the track sagging down, several sections of track suspended in mid-air anywhere from twenty to sixty feet, simply the rails and ties being left, the fills having gone from under them, and in other places slides down the mountains, covering the track absolutely out of sight with mud, gravel and rocks."

This description might be repeated for almost every mile of the line from Asheville to Statesville and for much of the line between Asheville and Spartanburg.

The destruction wrought by the storm came so suddenly that on July 15th many trains were caught on the line between terminals, and the fact that many more were not thus marooned is due to the timely warnings of section foremen and telegraph operators on the various lines. In addition to the large number of freight trains which were forced to discontinue their runs and take sidings at various points, and which are too numerous to mention here, the following passenger trains were storm-bound and isolated: Between Asheville and Salisbury, eastbound No. 12, at Marion, and westbound No. 21 at Connelly Springs; between Asheville and Spartanburg, westbound No. 9, in two sections, at Melrose, eastbound No. 10, in two sections, at Saluda, and Transylvania Division numbers 4 and 8, at Hendersonville; between Asheville and Knoxville, eastbound No. 28 at Nocona and eastbound No. 12 at Paint Rock. A heavy movement of passenger business to resort sections of western North Carolina was in progress, and it is as remarkable as it is fortunate that no passenger train was overwhelmed by flood or land-slide and thus swept to destruction with inevitable loss of life by the carrying away of the structures or road-beds. Not a passenger was killed or injured as a result of the flood. The first care of every one concerned in the operation of the railway was for the safety and comfort of these passengers; where there were not adequate hotel accommodations available, food supplies, bedding and other necessities were collected and placed at their disposal, and while in some cases a few were necessarily subjected to inconvenience, there was not a single case of actual suffering from hunger or any other cause.



CAROLINA MACHINE COMPANY, ASHEVILLE. SHOWING LOCOMOTIVE COVERED WITH DEBRIS,
CAB WASHED AWAY AND TENDER OVERTURNED.



ANOTHER VIEW OF CAROLINA MACHINE COMPANY PLANT.



SOUTHERN RAILWAY TRACKS UNDER WATER NEAR BILTMORE, N. C.



HOUSES FLOATING DOWN FRENCH BROAD RIVER AT ASHEVILLE. SOUTHERN RAILWAY COAL CHUTE IN BACKGROUND.

ASHEVILLE AND BILTMORE.

As Asheville is the hub of the radiating Southern Railway lines in western North Carolina it may be regarded, from the viewpoint of the railroad, as the storm center in that region. The rainfall at Asheville was not excessive, amounting on July 14th, 15th and 16th to only 2.85 inches, but early Sunday morning the rushing waters of the French Broad and the Swannanoa flooded the entire lower part of the city of Asheville and all of the neighboring model village of Biltmore. Here the lower part of beautiful All Souls' Church, built by the late Geo. W. Vanderbilt, and the Vanderbilt Hospital were flooded, houses in the village were swept away, and, despite heroic efforts at rescue, several persons were drowned.

At Asheville the water rose so rapidly that automobiles and street cars were abandoned in the streets near the Southern Railway Passenger Station, and two men who were trying to carry food to guests marooned in the Glen Rock Hotel nearby were drowned. The water in the station was several feet deep and reached nearly to the roofs of the umbrella shed, all of the tracks through Asheville and in the yards being under water and, in some places, covered with masses of drift of all kinds. Engines under steam in the adjacent freight yards were hastily abandoned, and a round-house employee was drowned in an attempt to seek safety.

The first information about the flood reached the headquarters of the Middle District at Knoxville about 3 p.m., on Saturday, July 15th, by wire from Mr. F. S. Collins, Superintendent of the Asheville Division. Mr. J. B. Akers, Engineer Maintenance of Way, and the roadmasters of the Middle District were in session in their regular monthly meeting at the time. Mr. Akers, Mr. T. S. Boswell, Superintendent of the Murphy Division; Mr. B. M. Smith, Roadmaster of the Asheville Division; Resident Engineer Harris, of the Middle District, and Mr. A. H. Caldwell, Roadmaster of the Transylvania Division, immediately arranged to go to Asheville on passenger train No. 102, leaving Knoxville at 4:35 p.m., instructions first having been given for pile-driver P-24 to run special from Chattanooga to Asheville, and for the Coster and Knoxville Division forces to load and forward bridge timber. The pile-driver special between Knoxville and Asheville picked up Bridge and Building Foreman E. S. Travis, with his gang and a car of timber at White Pine. This special arrived at Asheville about 5 a.m., Sunday, July 16th, and, with the exception of trains over the Murphy Branch, was the last train to go through for two weeks. Passenger train No. 101 left Asheville at 6:10 a.m., Sunday, and ran through to Knox-

ville ahead of the flood waters, warning the inhabitants of the towns and villages along the way.

On his arrival at Asheville Saturday night, Mr. Akers immediately started a force of men loading trestle timber in the Asheville Yard, and this work was continued until the water became too deep. At daylight Sunday morning an unsuccessful attempt was made to reach Biltmore. It was found that the waters, which were still rising, had covered all of the tracks for about three and one-half miles, from a point half a mile east of Biltmore to the west bank of French Broad River. The east-bound main track just east of Victoria Drive leading to the Vanderbilt estate, was washing badly, but further damage at this point was prevented by piling bags filled with chats along the down stream side of the track; however, considerable work was afterward necessary to restore this main line. The damage at, and in the immediate vicinity of, Asheville was all done on Sunday morning; the city was completely cut off from the outside world, and from any communication with supplies, or labor and material, with the exception of yard gangs, and one bridge gang which had come in with the pile-driver special on Saturday night.

Little could be undertaken, except the assembly and organization of the largest possible number of local laborers who were gathered as quickly as possible and lodged and fed in box cars, while the only work which could be accomplished was the salvage of such Company property as could be made fast, and such Company lumber and timber as could be protected by means of log booms. While the flood was at its crest and considerable anxiety was being felt for the double-track reinforced concrete girder viaduct over French Broad River the county structure known as Smith's Bridge, at the foot of Haywood Street, and just above the double-track bridge, was carried away by the accumulation of driftwood above it, and this structure, with the flotsam which its displacement liberated, added to the burden already being carried by the reinforced concrete double-track bridge. This structure stood the test of the flood and drift, and was not damaged to any extent, in spite of the mountain of drift which had lodged against it. Erosion from the flood waters began in the fill at the east end of the bridge, but by the prompt expedient of driving sheet piling, the westbound track was saved, although the eastbound track was washed out. Late in the afternoon of Tuesday, July 18th, the flood had receded sufficiently to allow the forces to begin work cleaning off the yard tracks, shoveling mud off of the main tracks, and clearing switches of debris so that work-trains could be made up and operated as far as the rails were intact. Almost the entire yard of about 1,500 cars capacity, including freight station, round-house, shop buildings, turn-table, coaling station, cinder pits, and other facilities, was covered with mud, drift and debris of all sorts, the silt deposit in many places being more than 12 inches in depth over the rails, while the passenger station, which had had over five feet of water above the floor line, was in very bad condition. Creosoted piles, telegraph poles and bridge timbers that had been stored near the west end of the yard were drifted together with all kinds of lumber from up-stream, fragments of houses, and other debris, around and between cars in the yard, and the work of extricating the equipment from these entanglements required several days when forces were

finally available for that purpose. As soon as conditions permitted, on Tuesday the 18th, a 120 ton wrecking derrick was assigned to work loading all of the bridge timber which was accessible, and this prompt action materially advanced the progress of the work of the forces within the next few days. The supply of cross ties around Asheville had been washed away, and others on the division could not, of course, be reached. It was, therefore, necessary to purchase on the Murphy Division all of the available cross-ties and rush them to the Asheville Division for use in temporarily cribbing the track in wash-outs and breaks.

The Murphy Division, which was the only line open into Asheville, extends westwardly from that point 123 miles to a connection with the Louisville & Nashville Railroad, at Murphy, N. C. This line suffered only slight damage, and was blocked only a few hours. Accordingly this division was used to its capacity and taxed to its utmost in bringing in the large quantities of material that had been shipped or detoured by way of Knoxville, and the L. & N. R. R., to Murphy, and also bore the entire burden of handling passengers in and out of Asheville, and carrying miscellaneous supplies into that city. This indispensable service was efficiently handled by Supt. T. S. Boswell, who remained out on his line the entire time, and who, in addition to supervising this unusual train service, attended to the detail of purchasing and forwarding all of the cross-ties and bridge timber available on his division.

As soon as General Superintendent G. R. Loyall of the Middle District learned of the disastrous conditions, he made his way, as quickly as possible, to Asheville, going by way of Murphy, and upon arrival immediately assumed active charge of all the reconstruction work in that section. Under his direction Mr. Akers was placed in charge of the forces, material and equipment directed toward reconstruction in three directions out of Asheville, and he was assisted during the first few days by Mr. Alexander Harris, Resident Engineer, who later went to the Salisbury line as Principal Assistant to Mr. T. H. Gatlin, Asst. Chief Engineer, M. W. & S. Mr. J. A. Walker, Asst. Roadmaster of the Birmingham Division, made his way to Asheville on foot from a point near Spartanburg over the badly damaged mountain country, and upon arrival at that point was placed in charge of a force of 125 men to work westward from Asheville along the river line toward Morristown. His force consisted of Principal Asst. Engineer Crenshaw's Construction Department gangs under Foreman Parker, and two bridge gangs under Foremen Turner and Travis. These forces were augmented later by two additional large gangs under Foremen Davis of the Mobile Division, and Edmonston of the Birmingham Division, together with three bridge forces from the Cincinnati, New Orleans and Texas Pacific Railway. Mr. Walker's forces were thus recruited to 225 men.

An encouraging feature was the initiative of the Section Foremen in the flooded district, all of whom were found at work reconstructing their lines on their sections as best they could under conditions of shortage of labor and material, and these detached units deserve special commendation for this work in the salvage of the property and its reconstruction. Indeed, this spirit was encountered on every section affected by the floods.

Trainmaster C. G. King, of the Asheville Division, with Bridge Foremen Huffman and Deal and their forces, and also Road Carpenter W. M. Liverett, made their way into Asheville from the Salisbury line by walking over the mountain from Nebo, a distance of 45 miles, and were promptly on hand to assume their responsibilities when the flood waters receded.



FRENCH BROAD RIVER AT ASHEVILLE. REMAINING SPANS OF SMITH'S BRIDGE IN FOREGROUND WENT OUT SOON AFTER PHOTOGRAPH WAS TAKEN.



SOUTHERN RAILWAY PASSENGER STATION, ASHEVILLE.



TRAIN SHEDS, SOUTHERN RAILWAY STATION, ASHEVILLE.



ROUNDHOUSE AND PART OF EAST YARD, ASHEVILLE.



VIEW FROM ROUNDHOUSE AT ASHEVILLE AT HEIGHT OF FLOOD.



DEBRIS LEFT IN YARD AND ROUNDHOUSE AT ASHEVILLE WHEN WATER RECEDED.



YARD AND ROUNDHOUSE AT ASHEVILLE WHILE THE FLOOD WAS RISING.



DEBRIS NEAR ASHEVILLE CONCRETE BRIDGE AT HEIGHT OF FLOOD.



FIRE CAUSED BY SLAKING LIME IN BOX CAR IN ASHEVILLE YARD DURING HEIGHT OF FLOOD.



SOUTHERN RAILWAY TRACKS UNDER ASHEVILLE CONCRETE BRIDGE AFTER WATER RECEDED.



SOUTHERN RAILWAY TRACKS UNDER WATER BELOW SMITH'S BRIDGE AT ASHEVILLE.



SMITH'S BRIDGE, ASHEVILLE, WRECKED BY DEBRIS.



TEXACO OIL YARD, ASHEVILLE.



SPRING STREET APPROACH TO SMITH'S BRIDGE, ASHEVILLE.



REMAINS OF RIVERSIDE PARK, ASHEVILLE—WATER RECEDING.



FRENCH BROAD RIVER NEAR MURPHY JUNCTION. SOUTHERN RAILWAY VIADUCT IN BACKGROUND.



SOUTHERN COAL COMPANY'S YARD, ASHEVILLE.

ASHEVILLE-SALISBURY LINE.

On the line between Asheville and Salisbury substantially all of the flood damage occurred on Sunday, July 16th. From Eufola, 32.8 miles west of Salisbury, through to Asheville, the entire line was a wreck. Bridges were out, cuts and fills were obliterated, and, over the entire distance of 108.2 miles, there was scarcely any undamaged track.

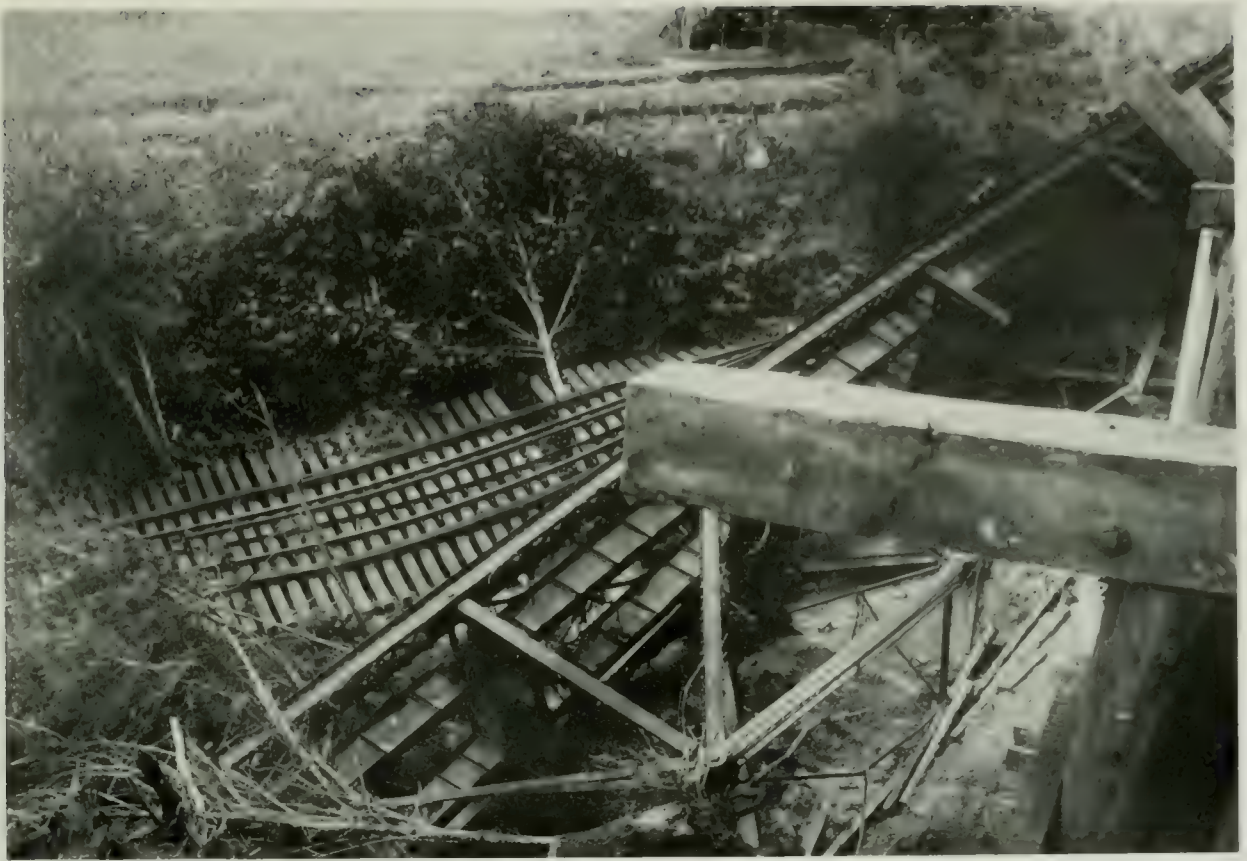
Upon receiving the first reports of the disaster, Mr. E. H. Coapman, Vice-President and General Manager, and Mr. T. H. Gatlin, Assistant Chief Engineer of Maintenance of Way and Structures, started immediately for the scene of the trouble, arriving at Statesville at 5:30 a.m., on Monday, July 17th. There they learned that the bridge across the Catawba River, three miles west of Eufola, had been carried away at 9:15 a.m., July 16th. It was evident that one of the first needs would be means for the transfer of materials and passengers across the river, and a force of men was set to work at Statesville making ferry boats. Mr. Coapman and Mr. Gatlin then started out on the line, arriving at Eufola at 6:30 a.m., and, walking west on the track to Buffalo Creek, they found bridge forces and extra forces from the Danville Division which had been sent forward by General Superintendent Simpson. The track was under water for three miles. Buffalo Creek bridge girders and approaches had been badly displaced by the force of the flood and the accumulation of drift. The Catawba River, visible from high ground at Buffalo Creek, was a raging torrent, with a current running about twenty miles an hour and three distinct channels of flow apparent. At that time the water had receded about twelve feet, but the track, as far as could be seen, was under water or badly washed away. Mr. Coapman and Mr. Gatlin spent the remainder of the day at Buffalo Creek organizing forces and arranging for materials.

On returning to Eufola, they learned that the double-track bridge across the Yadkin River on the main line three miles north of Spencer was in danger. Obtaining a special engine and crew, they went at once to this bridge and remained until 3 a.m., Tuesday, July 18th, when, being satisfied that it was safe, they returned to Eufola and spent the morning taking care of forces which came in, assigning them to work and arranging temporary quarters. Mr. C. G. Arthur, Superintendent of the Richmond Division, and Mr. N. L. Hall, Bridge Supervisor of the Danville Division, were placed in charge of the bridge forces, track forces, pile-drivers, etc., which had been assembled and were arriving for the purpose of rebuilding the Catawba River Bridge at this point. After remaining with this organization for a time, Mr. Coapman left them in charge and returned to Washington to direct the larger administration of affairs in the reconstruction of all of the lines in the flooded district. By 1 o'clock Tuesday, July 18th, the Catawba River had receded sufficiently to effect a crossing in the boats which had been hurriedly built. The force of the current was so great that the boats landed many thousand feet down stream from the point where they had left the opposite shore. Mr. Gatlin and Assistant Engineer Fritz Sharpe crossed the river and made their way to Catawba Station after detouring about three miles across the country and arrived there at about 3 p.m. Accompanied by Company

Operator F. E. Drumwright, whom they had picked up here, they made their way on foot and by other means, such as marooned engines, spare lever-cars, etc., toward Asheville. They were able to go by engine from Newton to Connelly Springs, a distance of about twenty miles, which was the only section of line of any considerable length between Eufola and Asheville (107 miles) that had not been seriously damaged. The trip from Connelly Springs to Glen Alpine was made the same night by walking, using a lever-car and the geared engine of the Kistler Tanning Company, at Morganton, which was kindly loaned by Mr. Kistler, weighing only thirty-two tons, and which could be operated at slow speed over badly broken fills, washed track and other damages. The first bad break was encountered about two miles west of Connelly Springs. West of Glen Alpine the damage was much more severe. At Bridgewater the track in the entire valley was washed out. The railway station had three feet of water over the floor, the passing track was destroyed and seven cars in a marooned freight train washed away. The approaches to Muddy Creek span had been washed out and the fills very badly broken, considerable lengths having been completely destroyed and the track gone. Passing Bridgewater, high ground was encountered again, and, while all the stream crossings were badly damaged, there were stretches of track of considerable length, which, by lining over, or otherwise temporarily treating, could be operated by the lightest class of engines obtainable, which were the geared engines in use by the tanning companies in that section. Near Bridgewater, Track Supervisor John D. Leonard, who was trying to make his way west and had to turn back, joined the party, which reached Marion about 2 p.m., July 19th. Here train No. 12 was found marooned with about 225 passengers, who were being taken care of in the hotels and private houses as well as could be expected in a small town whose electric lights and water supply were out of commission and the food supply limited. They were advised that temporary repairs were being rapidly effected, and that at the earliest practicable moment they would be moved with light equipment to the Catawba River and transferred by ferry to a special train which would take them to Salisbury. They were in good spirits and welcomed the news that they would soon be able to get away.

The most pressing problem at Marion was that of an adequate food supply for the marooned passengers and the large forces then being recruited. All foodstuffs on wheels that could be found at the various stations and on passing tracks and loading tracks which had not been cut off or floated away by the flood had been commandeered, but the available supply was far below what would be necessary for the large additional forces that would have to be gathered for the reconstruction work, and the best information that could be had indicated that conditions on the line west of Marion were worse.

Such bulk groceries as could be obtained from the wholesale merchants in Marion without inconveniencing the public were bought, and arrangements were made with road commissioners to begin repairs of the mountain roads toward the west so that supplies could be hauled by wagon to a base to be established at the foot of the Blue Ridge Mountains at Old Fort, North Carolina. After arranging for a temporary base at Marion, the party proceeded westward on foot to Old Fort, a distance



CATAWBA RIVER CROSSING NEAR EUFOLA, N. C., SHOWING ONE OF THE FIVE DISPLACED AND WRECKED DECK TRUSS SPANS.



CATAWBA RIVER CROSSING NEAR EUFOLA, N. C., SHOWING TEMPORARY STRUCTURE WITH WRECKED SPANS ON THE RIGHT.



CATAWBA RIVER CROSSING
 TEMPORARY STRUCTURE 1,600 FEET LONG ACROSS THE RIVER
 VIEW AFTER TWO PIERS FOR



CATAWBA RIVER CROSSING.—NEAR VIEW OF TEMPORARY STRUCTURE.



NEAR EUFOLA, N. C.
AND THE DEVASTATED VALLEY. ERECTED IN SIXTEEN DAYS.
PERMANENT STRUCTURE HAD BEEN COMPLETED.



CATAWBA RIVER CROSSING.—DISTANT VIEW OF TEMPORARY STRUCTURE.



EFFECTS OF FLOOD IN CATAWBA VALLEY NEAR EUFOLA, N. C.
 UPPER VIEW—AN ACCUMULATION OF DRIFT AT BUFFALO CREEK SHOWING GIRDERS REPLACED.
 LOWER VIEW—SAND DRIFTS REMOVED FROM TRACK AND STEEL CAR WASHED NEARLY A MILE DOWNSTREAM.

of twelve miles, arriving at 6:20 p.m., on Wednesday, July 19th. This part of the line traversed the valley of the Catawba River and the flood damage was much worse than below Marion.

As Mr. Gatlin and his party made their way from Eufoia to Old Fort they made arrangements for securing all available labor in the local communities, organized proper supervision and gave definite instructions for the prosecution of such work as could be done with the materials and appliances on hand. On arrival at Old Fort that point was selected as the working headquarters and base for the reconstruction of the line between that point and Connelly Springs, forty three miles east, and for the heavy reconstruction work found to be necessary on the eleven miles of badly damaged mountain railroad between Old Fort and Ridgecrest on the west. Thirty-six hours were devoted to purchasing lumber and supplies, starting camps, organizing wagon service, gathering and organizing laborers and collecting all available resources. On Friday, July 21st, Mr. Gatlin climbed Blue Ridge Mountain and walked to Black Mountain, where he met General Superintendent Loyall and Engineer Maintenance of Way Akers, and by using bridge forces and extra forces to transfer the motor car which they had with them over badly washed track and road-bed, they arrived at Asheville at 7 p.m. This trip through the Swannanoa and French Broad valleys covered territory in which the full force of the storm had been felt, and some idea may be obtained of the tremendous destruction wrought by the floods and landslides when it is stated that between Old Fort and Asheville, a distance of thirty miles, there was not a half-mile of continuous track that had not either been so badly washed as to be impassable or under which the road-bed had not entirely slipped away or on which there was not a deposit of mountain slides varying in depth from one foot to twenty-eight feet. The worst conditions were between Old Fort and Ridgecrest, where mountain avalanches had slipped down from heights varying from seventy-five to three hundred feet, with the toes of the slides resting in deep cuts, which were filled with a conglomerate of mud, stones, logs, trees and stumps, making the work of removal extremely difficult, and this difficulty was increased by the inaccessibility of the location and the continuing displacement of the sliding material. Fills over mountain chasms, having become saturated, had gone out, carrying the debris many hundred feet below and to distances from one-quarter to three-quarters of a mile, leaving the track suspended in the air. Culverts had washed out, taking the fills with them, while others had broken down and impounded the water behind the fill. Tunnel portals had slid in, and the tunnels were filled with water, logs, mud and stones which had been carried down the track by the rushing waters. Bridges and stone arches over mountain streams had been completely carried away, leaving scarcely a visible trace of the materials of which they had been built. Highways and trails had been almost obliterated, adding to the difficulties of getting men and materials for the work of restoration. There were seventy-seven complete breaks of track and road-bed between Catawba and Ridgecrest beside partial breaks and displacements all along the line. To describe these damages in detail and define their locations would burden this narrative to too great an extent.

Returning from Asheville, Mr. Gatlin set about the task of enlarging and sys-

tematizing the organization at Old Fort on Sunday morning, July 23d. The lines of Southern Railway Company and other railroads in that territory being broken at many points, it was realized that many days, if not many weeks, must elapse before organized working forces and any adequate supply of tools, equipment, machinery or labor-saving devices could be gotten in. The problem of organization, therefore, was to make the best use possible of the material at hand. The labor was unskilled and without experience in railroad work, and the tools few in number and generally unsuitable, or only such as could be found in an agricultural community. Scouts were sent in every direction to employ every mountaineer who could bring a tool of any description with him. Camps were constructed by local carpenters and the entire country from Hickory to Old Fort was scoured for tools, bedding, rations and such other supplies as could be found in the local stores.

The men whom it was necessary to put in charge of working parties were generally without knowledge of construction work and could be depended upon only to keep the men together, remove debris from the right-of-way and salvage such track and structural material as had drifted to places from which it could be removed. Many of the stream crossings could not be temporarily replaced without a pile-driver, owing to the fact that the rains had continued every day and the waters were still running high, and it was not until three weeks after the flood—on Sunday, August 6th—that the first pile-driver was received at Marion by way of the Charleston Division and the Carolina, Clinchfield & Ohio Railroad. In the meantime, an organization had been established, some of the county roads partially and temporarily repaired so that wagon trains could be operated, and forwarding depots and storehouses had been built for handling the large quantity of tools and materials required. On the trip west, immediately after the flood, all of the local lumber companies had been put to work cutting bridge timber, and, while the output was slow, owing to the necessity for rebuilding roads and trails over which to haul logs, a considerable supply of this class of material was available by the time connecting links had been replaced between the Catawba River and Marion, and work-train service was available for hauling this material to Greenlee and transferring it across the Upper Catawba River into Old Fort. Just before the first pile-driver was received, a considerable supply of all classes of tools, supplies, materials, etc., had been received at Marion, and forwarded by wagon to Greenlee, where it was transferred by hand-car over the light temporary structure at Upper Catawba River crossing, reloaded on the work-train and delivered at Old Fort, from whence it was hauled by wagon over almost impassable roads up the mountain to the various points of distribution.

Train service had been established between Glen Alpine and the Catawba River, a distance of forty-seven miles, four days after the flood, and one passenger train and one local freight train each way per day afforded means for the better distribution of food supplies and of communication between the crippled and discouraged communities. As this train service was extended during the reconstruction work the line was operated as a detached transportation unit by marooned train crews under the supervision of men picked up locally in the affected district. On July 24th, train service was extended from Glen Alpine to Marion, and within one week of the



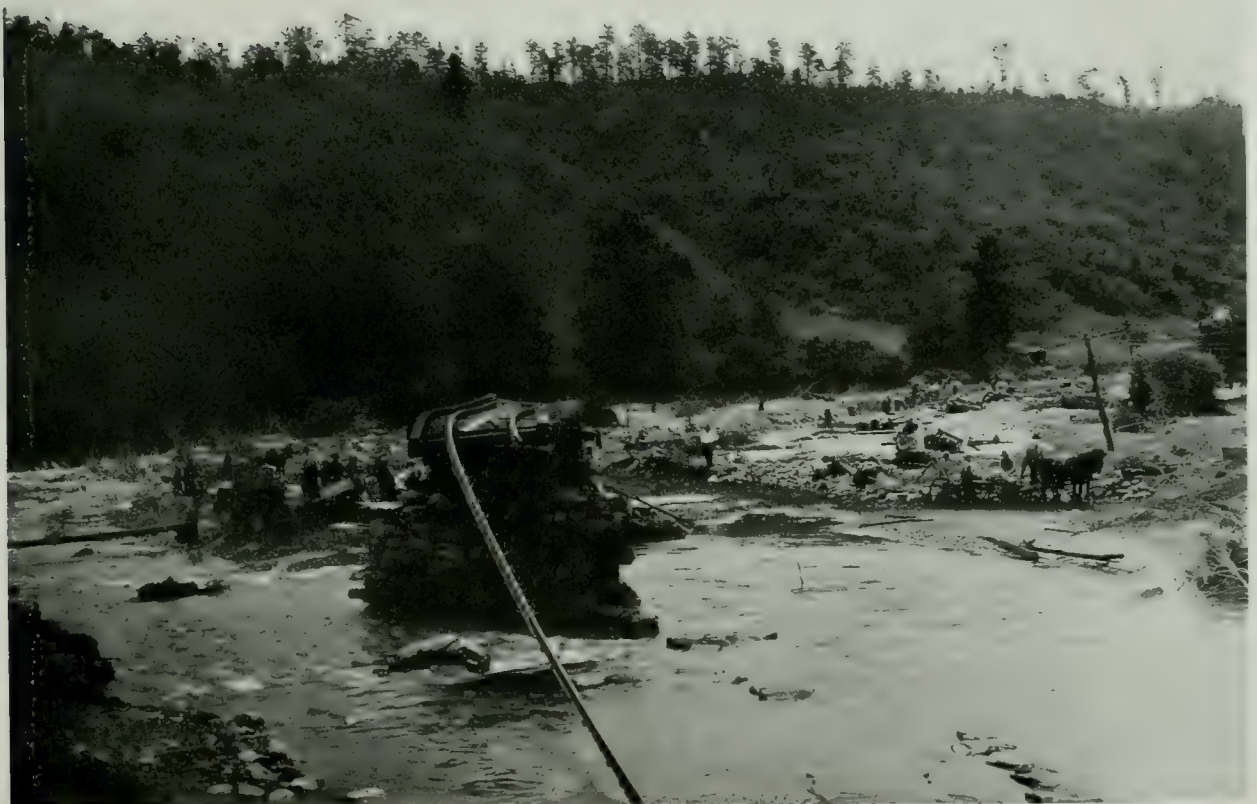
DEVASTATION IN UPPER CATAWBA VALLEY.

UPPER VIEW—BRIDGE ACROSS THE CATAWBA RIVER NEAR GREENLEE, N. C. ONE PIER AND BOTH APPROACHING EMBANKMENTS WERE WASHED AWAY.

LOWER VIEW—DESTRUCTION OF FILL BETWEEN CATAWBA RIVER CROSSING AND GREENLEE.



VIEWS SHOWING CONDITION OF TRACK IN SWANNANOA RIVER VALLEY BETWEEN ASHEVILLE AND RIDGECREST.



VIEWS SHOWING WASHOUTS OF EMBANKMENTS AND MASONRY ABUTMENTS ON MILL CREEK BETWEEN OLD FORT AND RIDGECREST. THE GIRDERS WERE SAVED BY THE WASHING OUT OF THE FILLS.



VIEWS OF TYPICAL INSTANCES OF DESTRUCTION OF FILLS AND CULVERTS ON LINE BETWEEN ASHEVILLE AND SALISBURY—THERE WERE TWENTY-ONE OF THESE CASES.



VIEWS OF TYPICAL DAMAGE TO FILLS AND CULVERTS IN MILL CREEK BOTTOM.



ALL THAT WAS LEFT OF A FILL 14 FEET HIGH AND 1,200 FEET LONG IN MILL CREEK VALLEY.



SAME FILL REPLACED IN SIX DAYS BY THREE-MILE HAUL OF BORROWED MATERIAL.

receipt at Marion of the pile driver and other equipment and supplies, train service was extended into Old Fort, thus obviating the necessity for the long wagon hauls to this point over the difficult roads and the transfer of materials by hand at Upper Catawba River. The opening of this line also increased the value of Old Fort as a base and made it possible to get steam shovel and rock outfits and other heavy equipment into the badly damaged mountain section. The preparatory work that had been done by laborers with small tools made it possible to operate trains westward from Old Fort to Dendron, a distance of four miles up mountain, within forty-eight hours after the time when train service into Old Fort was resumed.

Dendron now became the most important working base and a camp for taking care of seven hundred men was established at that point. Three steam shovels with five work trains were quickly gotten to work, and three rock outfits were engaged in the task of blasting off new road-beds on the slopes of the mountains where fills and structures had been swept completely away, leaving nothing but bare rock on which it was impossible to hold a fill or a temporary trestle. Day and night forces were working in even shifts. Food supplies were issued on time by the Commissary Department at the camps. A complete sanitation service was organized all along the line at the very beginning of the work, and its efficiency increased from day to day. This feature of the work was under the general direction of Dr. W. A. Applegate, Chief Surgeon, and under the immediate supervision of Drs. Ashworth and McIntosh. Water issued to the men was boiled and sent out in steamed containers. Food was kept screened and was prepared and served with every precaution to ensure cleanliness and sanitation, and the personal cleanliness of the cooks and handlers of food was carefully supervised at all times. Camps were well policed, carefully and thoroughly cleaned and treated daily with germicides and insect exterminators. All camps were provided with running water from locations and altitudes which insured freedom from contamination, and sanitary sewerage and shower baths were installed for the comfort and cleanliness of the men. Efficient sanitary measures were also enforced at all boarding car camps. The widespread and careful use of chloride of lime, paris green, and other chemicals, not only in the camps of the Company, but in private sources of disease in the neighborhood, contributed to maintaining a high average of healthfulness at all times. The larger camps established for handling the work, not including the smaller camps at several points, were as follows:

Catawba River (camp cars).....	300 men
Bridgewater (camp cars and buildings).....	350 men
Marion (camp cars).....	225 men
Greenlee (camp cars).....	100 men
Old Fort (camp cars and buildings)	600 men
Dendron (buildings).....	700 men

In all, one hundred and twenty-two miles of line were involved in the flood district between Ridgecrest and Salisbury. Between Eufola, Mile Post 33, and Ridgecrest, Mile Post 122, there was not a half mile of continuous track which was not more or less damaged by the flood. There were many breaks in the track between Eufola and Old Fort, the greatest of which was at the Catawba River, where a gap of 1,590 feet was made by the complete destruction of four spans of bridge—one 133 feet, 6 inches; one 136 feet, 10 inches, and two 133 feet, 2 inches—and 178 feet of trestle approach, together with two piers, and several hundred feet of fill.

Between Old Fort and Ridgecrest the destruction was so great as to involve considerable realignment and graduation on new locations. This relocation work was done by an engineering force loaned by Mr. D. W. Lum, at the head of the Valuation Department. Every part of the work was pushed as rapidly as practicable with the means and materials available. In all, there were about twenty-five hundred men engaged in the reconstruction work on the line between Eufola and Ridgecrest.

Owing to the stress of circumstances this force was organized by putting in charge of various features of the work the best men available, without regard to their previous training and experience, but it was necessary in many cases to assign men to duties with which they were wholly unfamiliar. Notwithstanding these handicaps the strength and resourcefulness of the Southern Railway organization was demonstrated by the rapid progress made all along the line. The construction of the temporary trestle bridge across the Catawba River, which was a large piece of work in itself, was completed on August 7th, and the first train crossed the river on that day.

From Ridgecrest to Asheville the reconstruction work, under the general supervision of General Superintendent Loyall, was under the immediate direction of Engineer of Maintenance of Way Akers. The first work was done by Track Supervisor J. C. Townsend, who was at Ridgecrest with an extra gang and Ditching Machine No. 8 when the flood occurred and was cut off from communication in either direction. He immediately began the work of taking out slides and ditching cuts. At Mile Post S-123.8 a wash-out thirty feet deep and forty feet long was cribbed up on logs cut in the neighboring woods and filled with the ditching machine. On the night of July 19th, a Cincinnati, New Orleans & Texas Pacific Railway force under Building Supervisor Burns, with a bridge derrick, arrived at Asheville and was immediately started out in the direction of Ridgecrest, and on the following night Bridge Supervisor R. E. Price, from the Coster Division, arrived at Asheville and went out on this work, the details of which included the clearing out of cuts, the filling in of washes and the construction of temporary bridges and trestles. Among the most serious breaks was one at Mile Post S-125, where the creek had washed out an old stone abutment and allowed the girder bridge to fall. A thirty-five-foot fill at the west end of the girder had also washed out for a length of about sixty feet. Another serious break was at Mile Post S-124, where there was a wash-out thirty-five feet deep and sixty-five feet long, and another was at Azalea station, where the Swannanoa River changed its course and washed out half of the fill in front of the station

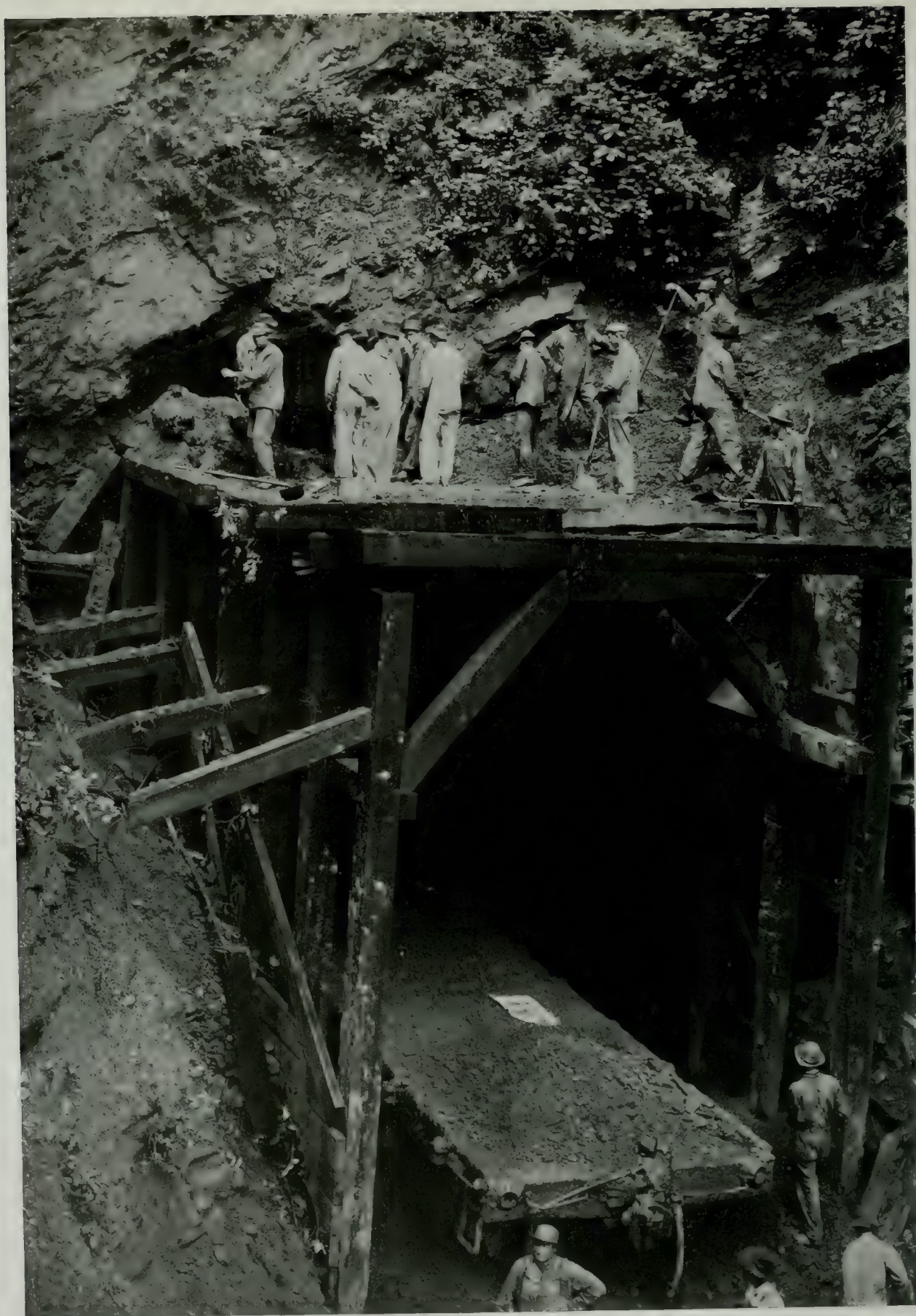
for a distance of about five hundred feet. By means of temporary trestles and cribbing, these breaks and others of smaller dimensions were rapidly closed and, on July 24th, eight days after the flood, the first passenger train was run from Asheville to Black Mountain, and three days later the first train was operated to Ridgecrest. Bridge Supervisor Price and the Cincinnati, New Orleans & Texas Pacific forces were then moved to the Asheville-Morristown line, and further work between Ridgecrest and Asheville was done by the regular force.

The progress of the construction work on the Asheville-Salisbury line may be measured by six weekly periods. Within one week after the flood, train service was established between the Catawba River and Glen Alpine. The second week it was extended to Marion; the third week to Old Fort, and by the end of four weeks the first work-train was operated over the entire length of the line. The next week regular passenger and freight service was inaugurated over the entire line, and at the end of the sixth week, on September 5th, full passenger and freight service was completely restored.



AFTER WORK WELL DONE.

MR. GATLIN AND SOME OF HIS ASSISTANTS ON THE JOB—TAKEN ON SUNDAY, AUGUST 27, WHEN PASSENGER AND FREIGHT OPERATIONS WERE RESUMED OVER THE MOUNTAIN DIVISION. THE LOCOMOTIVE IS THE FIRST ONE WHICH PASSED OVER THIS TERRITORY AS A WORK TRAIN ON AUGUST 20TH.



HIGH RIDGE TUNNEL.
REMOVING SLIDE OVER PORTAL WITH TEMPORARY SCAFFOLD. THE LOOSE MATERIAL ON FACE OF MOUNTAIN ABOVE TUNNEL CONTINUED IN MOTION FOR SEVEN WEEKS AFTER FLOOD.



VIEW THROUGH PORTAL OF HIGH RIDGE TUNNEL.
REMOVING SATURATED MATERIAL WHICH CONTINUED TO SLIDE INTO CUT FOR SEVEN WEEKS AFTER FLOOD.



SLIDE AT PORTAL OF LICK LOG TUNNEL—SUPERBURDEN IS 200 FEET ABOVE TRACK.



TYPICAL SLIDE OF SLOPE OF MOUNTAIN CUT WITH FOOT RESTING ON TRACKS AT DEPTHS
VARYING FIVE TO TWENTY-FIVE FEET.



VIEW OF THE GIANT SLIDE IN MOORE'S CUT—MUD, ROCKS, TREES, ROOTS AND DEBRIS OF MISCELLANEOUS CHARACTER FROM SIX TO TWENTY-FOUR FEET DEEP OVER TRACK. THIS WAS TYPICAL OF THE SLIDES IN ALL THE CUTS IN THE MOUNTAIN REGIONS ON THE ASHEVILLE-SALISBURY AND ASHEVILLE-SPARTANBURG LINES.

OPPOSITE VIEW SHOWS TRACK AFTER PARTIAL REMOVAL OF SLIDE WITH LABOR COLLECTED FROM THE NEIGHBORHOOD AND SUCH TOOLS AS WERE AVAILABLE.





UPPER VIEW—SLIDE IN CUT NEAR GRAPHITEVILLE—THE SUPERBURDEN IS 150 FEET ABOVE THE TRACK.
 LOWER VIEW—SLIDE BETWEEN GRAPHITEVILLE AND COLEMAN AFTER FOOT HAD BEEN MOVED BY HAND AND NEW
 TRACK BUILT. ORIGINAL TRACK IS UNDER DEBRIS.
 OPPOSITE VIEW—EAST END OF SLIDE 1,000 FEET LONG IN CUT NEAR GRAPHITEVILLE.



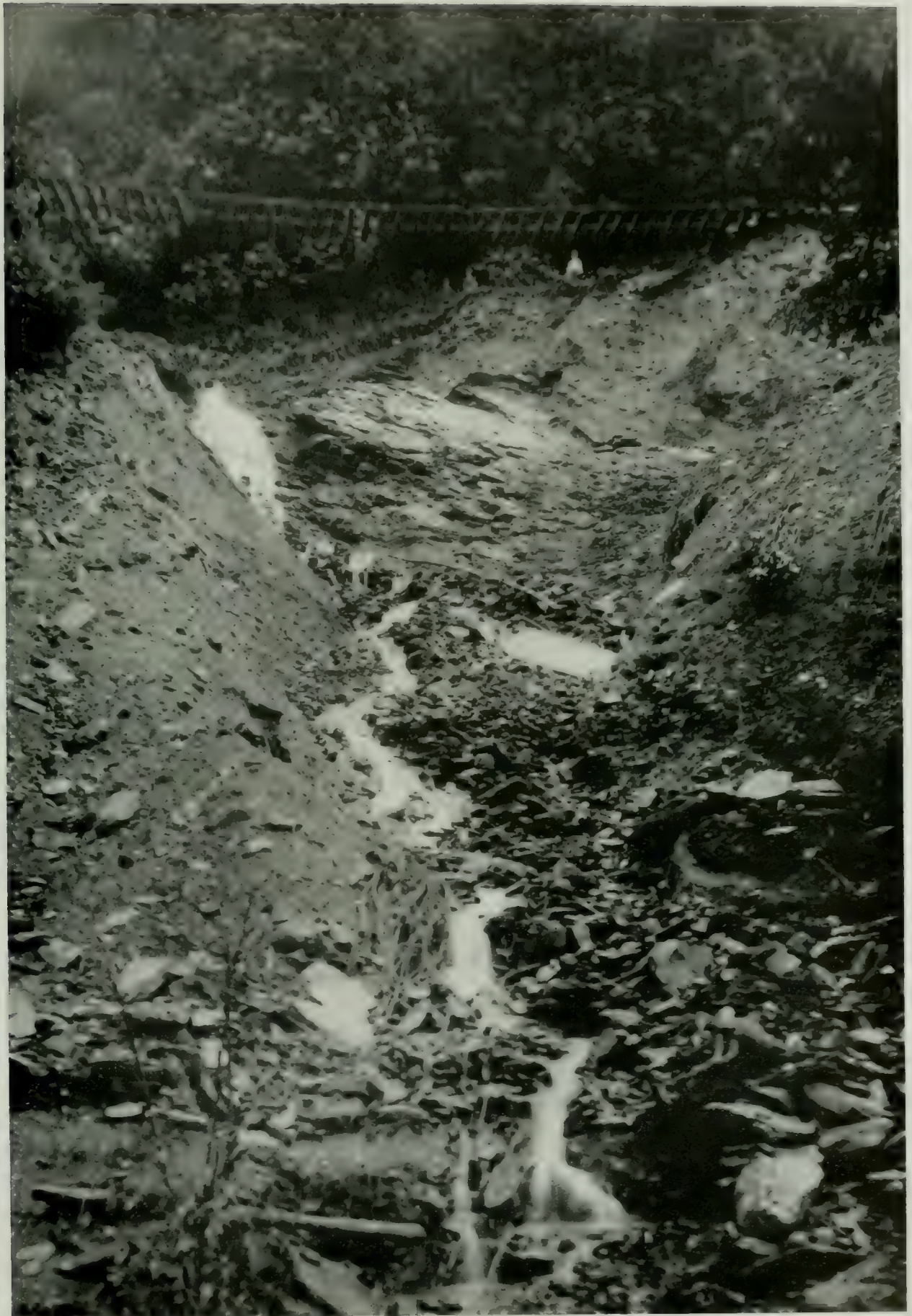


RECONSTRUCTION OF LINE AT MILE-POST S-120, BETWEEN RIDGECREST AND OLD FORT.
 AT THIS POINT FILL ABOUT 120 FEET HIGH CONTAINING 85,000 CUBIC YARDS OF MATERIAL SLID OUT, LEAVING
 THE TRACK SWINGING, AS SHOWN IN THE LOWER PICTURE.
 OPPOSITE VIEW SHOWS SAME POINT BEFORE RECONSTRUCTION, AND IS TYPICAL OF THE GENERAL DAMAGE TO
 FILLS ON THE MOUNTAIN LINES.





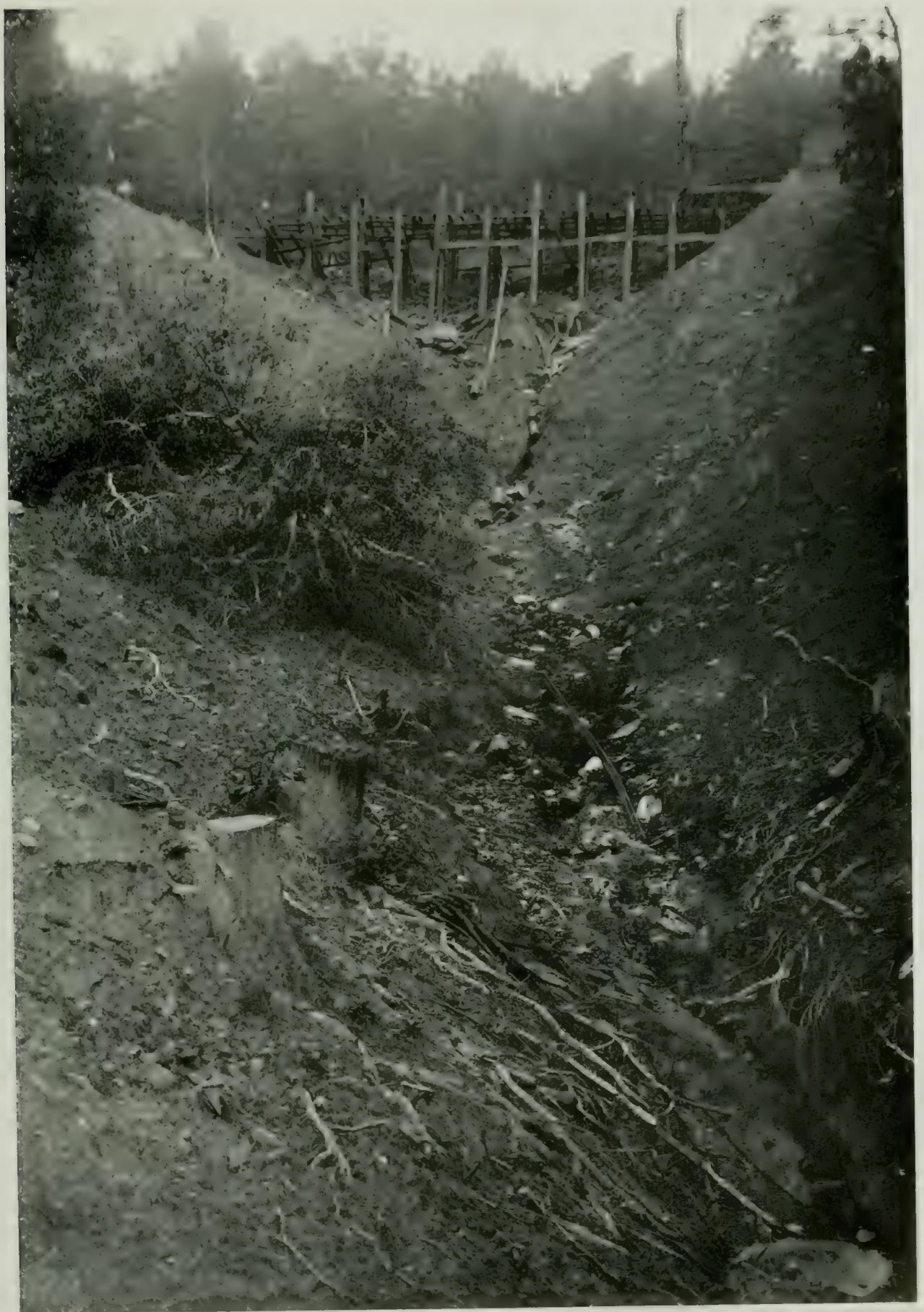
ON THIS AND OPPOSITE PAGE VIEWS OF FURTHER TYPICAL EXAMPLES OF FILLS BETWEEN OLD FORT AND RIDGECREST WHICH SLID DOWN THE MOUNTAIN, LEAVING TRACKS SUSPENDED.





REMAINS OF FILL AND CULVERT

THIS MATERIAL SLID OVER THREE HUNDRED FEET DOWN THE MOUNTAIN SIDE. THE FORMER POSITION OF THIS FILL AND TEMPORARY RECONSTRUCTION WORK ARE SHOWN IN THE VIEW ON THE OPPOSITE PAGE. AS IN ALL OTHER CASES OF SLIDING FILLS, THE MOVEMENT OF THE MASS STRIPPED THE ORIGINAL SOIL TO SOLID BED ROCK, MAKING NECESSARY DETOURS FROM THE ORIGINAL LOCATION TO OBTAIN SOLID GROUND IN WHICH TO DRIVE PILE TRETTLES, OR ON WHICH TO FOUND A FOOTHOLD FOR EMBANKMENTS.





TYPICAL MATERIAL COMPOSING SLIDES IN ALL THE MOUNTAIN CUTS ON THE ASHEVILLE-SALISBURY LINE WHICH IT WAS NECESSARY TO REMOVE BY HAND, USING MAROONED ENGINES AND CARS FOR WORK TRAINS.

ASHEVILLE MORRISTOWN LINE.

From the west end of the reinforced concrete bridge across the French Broad River at Asheville westward for a distance of about sixty miles, the Asheville-Morristown line of the Knoxville Division was practically a wreck. With the exception of a wash out about eighteen hundred feet long at Rankin, the damage between Bridgeport, Tenn., and Knoxville was light.

The first reports of damage on this line were received at Knoxville Sunday morning, July 16th, about 6 o'clock. Knoxville Division forces were loading lumber at Chattanooga and Cleveland for the Asheville Division Saturday afternoon and night. This lumber and the available forces were gathered as quickly as possible on Sunday afternoon and started from Knoxville, but it was found that the track east of White Pine was under water, in places to a depth of nine feet, so that the repair forces were held up until Tuesday, July 18th.

Conditions on this line were different from those on the Asheville-Salisbury and the Asheville-Spartanburg lines in that the rains were not severe enough to cause slides, and the damage was caused by the high water in the French Broad River, resulting in wash-outs of the line, which follows the river bank. In places the road-bed, whether on fills or benches, was washed away entirely, and in others it was under-washed on the river side. In many places rails and ties had been washed into the river, and the rails were twisted so that they could not be relaid.

The situation at Marshall, N. C., was exceptionally bad because of the location of the town in the narrow lowland between the river and the mountain. The railroad at this place is protected by a masonry wall along the edge of the river, and is paralleled by the main street of the town about one hundred feet away, the railroad and the street being fifteen feet above the normal level of the river. The crest of the flood was about seven feet above the track. As at Biltmore, the waters rose very rapidly and, but for advance telegraphic warning, many lives might have been lost. Even with this warning, two residents of the town were drowned, and the loss of property was great.

Work from the west end of the line was carried on under Assistant Roadmaster Rigby with the advantage of being accessible for delivery of equipment and supplies from Knoxville. Owing to conditions in and around Asheville and to the difficulty of concentrating men and materials at that point, it was not until Saturday, July 22d, that Assistant Roadmaster J. A. Walker, of the Birmingham Division, was able to begin to work westwardly with a Construction Department force under Foreman Parker.

The temporary repair work consisted largely of building cribbing in the washed places, realigning and strengthening trestles, lining track over onto firm ground and clearing away drifts. The line was connected for the through operation of work-trains about 5 p.m., Sunday, July 30th. Beginning July 18th, service was operated between Knoxville and Del Rio. On July 22d, service was extended

to Hot Springs. On August 1st, the General Manager's special was handled through to Asheville, and, on August 3d, through passenger and freight service was restored.

The Asheville and Craggy Mountain Railroad bridge over the French Broad River at Craggy (a subsidiary line) was washed entirely away, leaving only a few of the foundations in the river. The fill approaches at each end were also washed away. No repair work was done on this trestle until the necessary forces could be supplied from the Asheville Division to rebuild it. After the main lines were all connected, with the exception of the Asheville-Salisbury line, two bridge forces were put on this work and rebuilt the structure in exactly the same character as formerly.

Superintendent O. B. Keister, of the Knoxville Division, remained at his headquarters in Knoxville in wire communication with the working forces on the division, giving personal attention to the purchase of supplies, to getting material for the Asheville Division handled through Knoxville by way of the Louisville & Nashville Railroad and the Murphy Division, and also to the handling of an unprecedented movement of trains between Bristol and Cleveland, Tenn., brought about by detouring through traffic from the Washington-Atlanta main line.



REINFORCED CONCRETE VIADUCT ACROSS THE FRENCH BROAD RIVER WEST OF ASHEVILLE WHICH WITHSTOOD THE FLOOD, HOLDING BACK DEBRIS AND SAVING BRIDGES DOWN THE RIVER.



WASHOUT AT THE EAST END OF VIADUCT, SHOWING HOW WESTBOUND TRACK WAS SAVED BY PILING.



DEBRIS ABOVE VIADUCT WHEN WATER RECEDED.



LOOKING EAST FROM MARSHALL, N. C.—SOUTHERN RAILWAY TRACK UNDER WATER IN FRONT OF BUILDING.



MARSHALL, N. C., AFTER WATER RECEDED. SOUTHERN RAILWAY TRACK WASHED FROM WALL ON OPPOSITE SIDE OF RIVER.



MARSHALL, N. C., AFTER TRACK HAD BEEN REPAIRED AND DEBRIS PARTLY CLEARED AWAY.



MARSHALL, N. C., LOOKING WEST FROM STATION. POINT AT WHICH TWO LIVES WERE LOST.



A TANGLE OF TRACKS AT DEL RIO, TENN.



NEAR RUNION, N. C.



NEAR BUFFALO ROCK, TENN.

TYPICAL CASES OF THE WASHING OUT OF FILLS ALONG WATER COURSES.

ASHEVILLE-SPARTANBURG LINE.

On the line between Asheville, N. C., and Spartanburg, S. C., the damage was similar in character to that on the Asheville-Salisbury line, and was fully as serious, except that the mileage was not so great and it did not include any such structure as the Catawba River Bridge at Eufola.

Out of Asheville, the first damage was on the curve west of the Swannanoa River where about one thousand feet of double track was washed down into the field, and from this point eastward forty miles to Tryon, N. C., there was little of the line in passable shape. The greatest damage was on the Saluda mountain, where, in addition to the practically complete destruction of the railroad by the torrents which rushed down the mountain, the fifty-five-foot deck girder bridge across the Pacolet River at Melrose was carried out. The damage consisted principally of the washing away of fills and bridges and the filling of cuts by slides. When fills had not been washed out they had, in several instances, sloughed off for long distances.

On this line, as on others, bridge and section foremen and train crews did not wait for instructions, but immediately set about doing such repair work as they could do with the means at hand, in some cases going into the woods, cutting timber and building trestles that were of great value in hastening the work when they were reached by the organized and equipped repair forces.

It was not until Tuesday, July 18th, that the waters had fallen sufficiently to permit of work out of Asheville. Then, with such forces and equipment as were available, and which were increased from day to day, the work of reconstruction was pushed steadily southeastward. Slides were cleaned away, breaks temporarily filled in with trestles or cribbing to carry the tracks until permanent fills could be rebuilt, and rails and ties which had been carried long distances from the right-of-way were brought back and placed in the track, in some cases piecemeal. In other places the track was moved back into place with block and tackle. In the Mud Creek bottoms, west of Hendersonville, the track had to be taken out of the water, which was still several feet deep. Supplies of piles and other lumber along the line and sent in from the supply stations were supplemented by cutting trees in the woods.

While the work eastward from Asheville was in progress, the wrecked line on the Saluda Mountain was attacked from both ends. Superintendent Collins and Bridge and Building Supervisor Reister had gone to Saluda on the evening of Saturday, July 15th, as soon as they learned of the heavy rains in that locality. The next morning Mr. Reister went to Tryon, and, after getting together a force of about

forty men, which was greatly increased as fast as the men could be collected, began to work westward up the mountain, repairing sloughed-off fills, lining over and cribbing up tracks, building trestles and cleaning off slides. At the Pacolet River crossing at Melrose the bridge was out and the trestle approach, about three hundred feet long, had been washed down the river about eight feet. The trestle was gotten back into line and strengthened, and a temporary trestle was built across the river.

While Mr. Reister was working up the mountain from the east, forces under Track Supervisor Mobley were clearing slides in the vicinity of Saluda and working down the mountain, cribbing up the track across washed-out fills until more permanent work could be done. On Tuesday morning, July 25th, the line was connected up so that work-trains could be operated over its entire length and thereafter, with two steam shovels at work, rapid progress was made. The first passenger train was operated through on August 3d.

On the Asheville-Spartanburg line, substantial help was given by General Foreman Bean, of the Noll Construction Company, with a force of sixty-five negroes, who had been working on a street paving contract in West Asheville, and by Mr. Coleman Allison, Foreman of the Balfour Quarry Company, who offered himself and sixty-five men for any kind of work.



NEAR BALFOUR, N. C., SHOWING TRACK LEFT SUSPENDED BY THE SLIDING OUT OF A FILL.



SOUTHERN RAILWAY TRACK UNDER WATER NEAR BILTMORE, N. C.



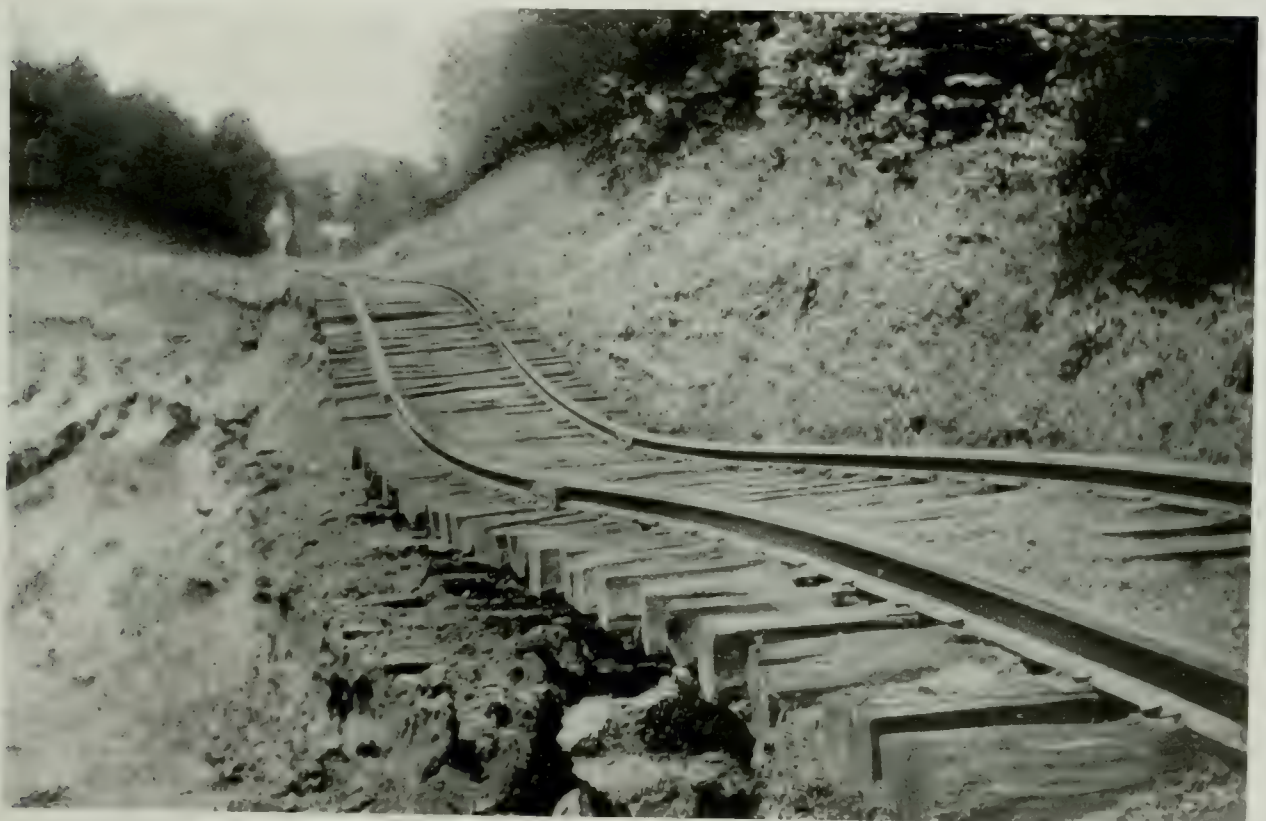
BRIDGE OVER THE SWANNANOA, NEAR BILTMORE, N. C.



TYPICAL VIEWS OF POINTS WHERE FILLS ON THE SALUDA MOUNTAIN SLID OUT, LEAVING TRACK SUSPENDED—
SHOWING THE CRIB WORK USED IN TEMPORARY RESTORATION.



TRESTLE DAMAGED AND WASHED OUT OF LINE NEAR MELROSE, N. C.



FILL WASHED OUT NEAR BIG CUT, N. C.



ROADBED WASHED AWAY AND TRACK UNDER WATER NEAR NORTH WILKESBORO.



DEBRIS ON TRACK NEAR NORTH WILKESBORO.

NORTH WILKESBORO BRANCH.

The North Wilkesboro Branch of the Winston-Salem Division was put out of operation by the overflow of the Yadkin River, which this line follows for a distance of fifty-four miles between North Wilkesboro, N. C., and Donnahaha, N. C. The road follows the river on its north bank at an average height of twenty feet above the normal level of the river and crosses the tributaries which flow into the Yadkin from the north on steel bridges and wooden trestles.

The river began to rise late in the afternoon of Saturday, July 15th, and reached its highest stage, thirty-two feet above normal, by 10 o'clock that night, about eight feet above the previous highest water. The bottom lands along the river were overflowed back to the higher ground on each side. Trees, houses and other buildings, lumber and wreckage of all sorts were swept down on the crest of the flood, and great damage was done to the fertile farms in the valley by washes in places fifteen and twenty feet deep, and by deposits of sand and mud many feet deep on lands which were out of the direct current of the flood.

Nine and a quarter miles of main track and one and three-quarters miles of side track had been washed away. Three hundred and eighteen panels of trestles, aggregating four thousand three hundred lineal feet, had to be rebuilt or repaired. Of this, ninety panels were entirely rebuilt, and from the other two hundred and twenty-eight panels the deck had been washed away and had to be replaced. Where the track was not washed by the flood it was covered with mud and heavy drifts consisting of houses, box cars, trees, lumber and all kinds of miscellaneous materials, one of these drifts being fifty feet high and one hundred feet long. Approximately sixty per cent of the fifty-four miles of track affected was covered with mud and sand to a depth of from six inches to two and a half feet. The force of the flood was so great that loaded box cars with their trucks were swept five miles down stream, and one car, heavily loaded with tan bark, was carried from North Wilkesboro to a point nine miles down the river.

General Superintendent R. E. Simpson, at Richmond, Va., was notified of the trouble at 10:30 Saturday night, and forty-five minutes later was on his way to Donnahaha with Engineer of Maintenance of Way G. E. Buckley. En route, Mr. Simpson arranged for forces from other divisions of the Northern District to begin loading lumber and piles early Sunday morning. On his arrival at Donnahaha, Mr. Simpson started over the line on foot, organizing reconstruction work and arranging for the employment of local labor, and gathering materials as he went. Tramp-

ing through mud, at places knee-deep, he reached Rockford Monday morning, Crutchfield that evening, and North Wilkesboro Tuesday evening.

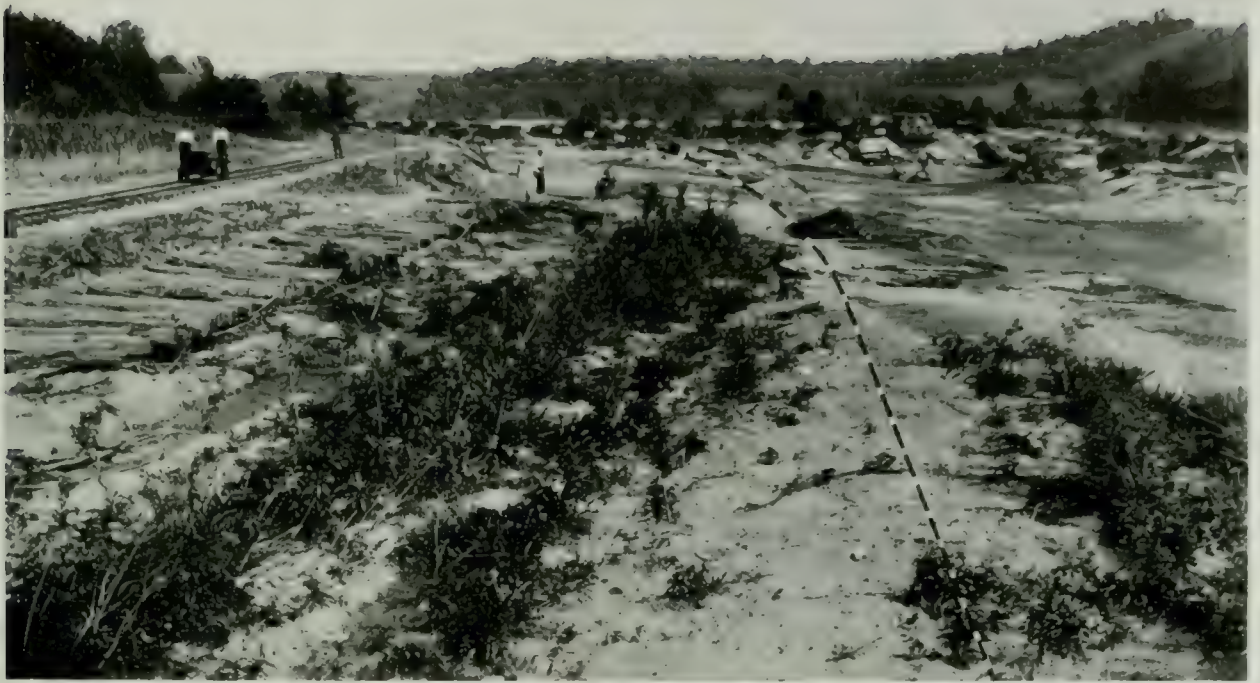
Repair work was started at once, the main force advancing from Donnaha. Fortunately two bridge gangs had been marooned at what proved to be strategic points—one under Foreman Linville, at Elkin, and one under Foreman Hewitt, at Roaring River. These started to work Monday morning, July 17th, with such tools and materials as had not been carried away by the flood. By attacking the work in sections in this way, with forces aggregating about six hundred men, what had at first seemed to be a task that would require several weeks was quickly completed, and service was resumed on the entire line at 11:05 a.m., Tuesday, July 25th. The reopening of this line in eight and a half days was one of the many notable achievements of the Southern Railway organization in repairing flood damages. This record was made possible by the untiring work of the regular Southern Railway forces engaged, by the employment of large numbers of additional men, and by the neighborly action of the Watauga & Yadkin River Railroad, which turned over a force of about five hundred men under General Manager H. C. Landon, who rendered most valuable assistance.

Bridge Foreman Hewitt and his force narrowly escaped drowning at the Roaring River bridge. They were on the structure protecting it from drift and were caught by the rapidly rising waters. They managed to reach the second floor of a house which, fortunately, was not swept away, but they lost all their camp cars and contents, including their tools, clothing and other personal belongings.



ROCKFORD TANK, N. C., LOOKING EAST.

THIS VIEW AND THOSE ON THE OPPOSITE PAGE SHOW HOW THE TRACK WAS LINED OVER WHERE THE ROADBED HAD BEEN ENTIRELY WASHED AWAY BY THE YADKIN RIVER. DOTTED LINES SHOW CENTER OF TRACK ON OLD LOCATIONS.



LIME ROCK, N. C., LOOKING EAST.



LIME ROCK, N. C., LOOKING WEST.



TYPICAL VIEWS SHOWING WASHING AWAY OF THE ROADBED ON THE NORTH WILKESBORO LINE.



VIEW ACROSS YADKIN RIVER AT SOUTHERN RAILWAY STATION, ELKIN, N. C.



ELKIN, N. C., AFTER WATER HAD FALLEN ABOUT THREE FEET.



PASSENGER STATION AT ELKIN, N. C., AFTER WATER HAD FALLEN ABOUT THREE FEET.



SOUTHERN RAILWAY BRIDGE ACROSS BIG ELKIN RIVER.



NEAR NORTH WILKESBORO, N. C. — ALL TRACE OF THE RAILROAD WASHED AWAY.



DEVASTATION IN THE RIVER VALLEY NEAR NORTH WILKESBORO, N. C.



CATAWBA RIVER CROSSING NEAR BELMONT, N. C.—VIEW IMMEDIATELY AFTER BRIDGE WENT OUT, SHOWING DECK WITH TRACK FLOATING DOWN STREAM.



CATAWBA RIVER CROSSING NEAR BELMONT, N. C., SHOWING THE BEGINNING OF THE WORK ON THE SOUTH SIDE.

THE CATAWBA RIVER BRIDGE NEAR BELMONT, N. C.

The rains which fell in the Piedmont and Coastal Plain sections of North and South Carolina did little direct damage to the Company's lines, but they so filled the lower reaches of the rivers that when the floods swept down from the western North Carolina mountains, they rose to unprecedented heights, swept away bridges that were far above all previous high-water marks, and damaged the lines in the river valleys.

In addition to the bridge across the Catawba River, near Eufola, N. C., on the Asheville-Salisbury line, the Company lost three other bridges across this stream, one of them a mile and a half north of Belmont, N. C., on the Charlotte Division, another five miles north of Rock Hill, S. C., on the Columbia Division, and another ten miles south of Rock Hill, on the Charleston Division. The loss of these bridges was a serious matter, not only because of the intrinsic value of the structures, but also for the reason that, by cutting the three lines of the Company south of Charlotte, N. C., they put all of the lines of the Northern and Eastern Districts out of commission for through traffic, greatly increasing the difficulty of detouring trains and imposing additional burdens upon the Knoxville and Atlanta Divisions.

It became apparent early on Sunday, July 16th, that the steel deck truss and plate girder bridge carrying the main line of the Charlotte Division across the Catawba River, one and one-half miles north of Belmont, was in danger of being carried away by the rushing waters sweeping under it and carrying vast quantities of wreckage of all kinds which piled against it. Strenuous efforts were made to save this bridge. All of the men available were sent out on the structure to push away the debris which had lodged against the bridge and the piers so that it could pass on down the stream. A steam derrick was hurried to the bridge from Charlotte to be used in handling wreckage that could not be passed under the bridge. A heavy northbound movement of peaches was in progress, and the work was interrupted from time to time to let peach trains pass. The water continued to rise and the accumulation of drift became more difficult to handle, until, at 5:35 p.m., the entire bridge went out, with the exception of one seventy-five-foot and one fifty-five-foot girder supported on an abutment and two piers at the north end. About two hundred and fifty feet of embankment was washed out at each end of the bridge, making the total length of the opening about eleven hundred feet. Fortunately, the derrick and most of the workmen had been moved off of the bridge to permit the passage of the last peach train that got over it. There were, however, nineteen men on



CATAWBA RIVER CROSSING NEAR BELMONT, N. C., SHOWING THE BEGINNING OF THE WORK ON THE NORTH SIDE.



CATAWBA RIVER CROSSING NEAR BELMONT, N. C., SHOWING THE COMPLETED TEMPORARY STRUCTURE.

the bridge when it went down, including Resident Engineer J. A. Killian, Supervisor H. P. Griffin, Car Inspector J. N. Gordon, Section Foremen C. S. Barbee, H. T. Savage, R. O. Thompson and W. L. Fortune, Derrick Hands C. W. Klutz, H. C. Gurley and G. C. Kale, and Section Hands Evans Brown, Will Rice, Jule White, Daniel Heath, Andrew Scott, Tom Ashwood, Tom Davy, Sloan Adams and Will Ferguson. All of the section hands were colored. The water was so high and was running so swiftly that, with darkness coming on, immediate efforts to save these men were impossible, and ten of them were lost, including Supervisor Griffin, Car Inspector Gordon, Section Foreman Barbee, Derrick Hand Klutz and Section Hands Heath, Scott, Ashwood, Davy, Adams and Ferguson. The bodies of Supervisor Griffin, Section Foreman Barbee, Car Inspector Gordon and Section Hands Adams and Ferguson were subsequently found at points down the stream. Some of the men are supposed to have been killed by the falling steel work; others were drowned, and others caught planks and other debris and floated down the river to points where they could catch hold of trees and climb out of the water. The men who reached these places of temporary safety remained in the tree tops until Monday morning. At dawn, Student Apprentice B. M. English and Western Union Foreman H. T. Verner went to the rescue of four men who were clinging to one tree, but just as one of the marooned party stepped into the boat it was overturned and swept down the river, Messrs. English and Verner saving themselves by climbing into the tree, and it was not until noon, when two negroes, Alfonso Ross and Peter Stowe, succeeded in getting all of the men out of the trees in a flat-bottom boat.

The river continued to rise all through Sunday night and Monday afternoon until it had reached a level at least twelve feet higher than when the bridge went out, making the total rise of the river over fifty feet. As soon as the water had fallen sufficiently and men and material could be collected, the work of putting in a temporary bridge was commenced, and was carried on from both ends, although work at the south end was delayed by the fact that the bridge over the South Fork of the Catawba River, near Mayworth, N. C., had been damaged, and had to be repaired before work-trains could pass over. This bridge had been saved from destruction by Supervisor of Bridges and Buildings T. E. Sharpe, who, with a force of men, had kept off the drift. The first train was passed over it at 2 p.m., on July 18th.

Immediately upon learning that the bridge over the Catawba River, near Belmont, had gone out, Chief Engineer Herman and Engineer of Maintenance of Way Lemond, who had been supervising the work at the South Fork bridge, went by lever-car to the Catawba River bridge, arriving within less than an hour after it had gone out. Immediately arrangements were made for ordering material and men to start the temporary bridge. At the north end the broken fill was levelled off and frame trestle work started. On the south end the broken shoulders of the fill were flushed with a steam shovel obtained from a contractor on the double-track work. By the time the frame trestle at the north end and the flushing of the fill at the south end were completed, pile-drivers with material had reached the site, and work driving pile trestles at both ends was started. In the meantime, with a view

to using plate girders which were on hand, the building of a pile-driver barge was also started. Notwithstanding the difficulty of constructing the barge and obtaining machinery for the river driver, this driver, under the supervision of Engineer A. Y. Willard, of the Construction Department, succeeded in driving two pile piers in mid-stream, making it possible successfully to land three seventy-five-foot girders by the time the pile trestles at each end were completed. An additional seventy-five-foot girder was landed on the pier which still remained on the south end and on a pile pier built by the driver.

Work was carried on night and day, using Well's lights at night until electric lights were provided by the use of a dynamo of the Riverside Brick Company. The first train operated over the temporary bridge was No. 37 at 11:45 a.m., on Monday, July 31st, which was less than fifteen days after the bridge had been washed away. In the meantime the operation of passenger service had been resumed on July 26th, transfers across the river being made by ferry. A total of 2,701 passengers were handled on this ferry.

From an operating point of view the loss of this bridge, cutting as it did the main line between Washington and Atlanta, necessitating the detouring of through traffic from this line by way of Lynchburg, Bristol and Chattanooga, was one of the most serious effects of the flood, and its restoration within the shortest possible time was a matter of great importance. That it was accomplished so quickly in spite of difficulties in assembling materials and forces was largely due to the efficient supervision of the work by General Superintendent W. N. Foreacre, who was on the job day and night, and who was ably assisted by Chief Engineer Herman, Superintendent Hungerford, Engineer of Maintenance of Way Lemond, Engineer of Bridges Ilsley, Principal Assistant Engineer Ezzell, Roadmasters Ballenger and Beasley, and Bridge Supervisor Welker, of the Washington Division.

The temporary structure at this point is now being replaced by the new permanent double-track bridge provided for in the plans for double-tracking that part of the line which is being built a short distance above the present temporary bridge and will be used as a single-track bridge until the double-track is completed.

THE CATAWBA RIVER BRIDGE NEAR FORT MILL, S. C.

The bridge across the Catawba River, three miles south of Fort Mill, S. C., was a deck riveted truss structure consisting of nine spans with a total length of 1,129 feet. All of these spans except the one on the south shore were carried away. The piers were all more or less damaged, but their foundations were not injured, and the spans which were carried away were left by the receding water in such condition that they could be used in replacing the bridge as a permanent structure.

The total length of the opening between the span which remained on the south shore and the abutment that remained on the north shore was 1,040 feet. As only one pile-driver was available, it was started from the south end. In the meantime, forces were engaged in picking up and replacing original spans which were on the ground and in the water immediately below the bridge. These spans were supported on stone piers, blocking being used to level them where they had been broken off when the bridge went out. These forces succeeded in placing three spans in position by the time they met the pile-driver working from the south end. The total length of trestle built was 665 feet. The work was completed at 3 a.m., on August 7th, when train No. 31 passed over the structure. In the meantime, however, passenger service had been resumed on Saturday, July 22d, transfers being made in three boats built by Company forces and also by five batteaux manned by Indians and commanded by an Indian named John Brown until, on Friday, July 28th, a cable float operated by the current was put into operation. The work of construction was under the general supervision of Superintendent J. W. Wassum. The construction from the north shore was done by Engineer J. O. Hunt, of the Construction Department, who had under him Foremen Ketchie, Adams, Worsham, Hawington and Fox, and was assisted by Contractor J. P. Eichley and the Seaboard Construction Company. The foremen in charge of the forces which started to work as soon as the river went down were Bridge Foremen J. E. Null and J. B. Deal, with Sub-Foremen D. E. Wessinger and C. H. Deal. Later Foremen W. L. Haddon and R. E. Bird and Sub-Foremen J. T. Downs and R. L. Rattaree, of the Columbia Division, and Foremen C. W. Hill and J. W. Barnes and Sub-Foreman B. Bentley, of the Birmingham Division, arrived with their forces and helped on the work.

As soon as the temporary structure had been completed, work was immediately begun on restoring the permanent structure by building up the damaged piers and replacing the remaining steel spans. These were lifted out of the bed of the river by three 75-ton Bucyrus derricks and raised on cribs to the proper elevation. When a span had been placed in this position, the temporary trestle was cut away, the span was moved to its permanent position and the track rebuilt. This work was done under the personal supervision of Engineer of Maintenance of Way Lemond, assisted by Roadmaster J. R. Fowlkes, Supervisor of Bridges and Buildings J. L. Mauney and Foremen Null and Bird. Three times in succession they accomplished the work of getting a span into position from the crib work and the track rebuilt across it in the extraordinarily short time of three hours and thirty minutes.



CATAWBA RIVER CROSSING NEAR FORT MILL, S. C.—VIEW FROM SOUTH SIDE SOON AFTER BRIDGE WENT OUT.



CATAWBA RIVER CROSSING NEAR FORT MILL, S. C.—VIEW FROM SOUTH SIDE AFTER WATER HAD RECEDED.



CATAWBA RIVER CROSSING NEAR FORT MILL, S. C.—VIEW FROM NORTH SIDE SHOWING DAMAGED PIERS AND STEEL SPANS IN THE RIVER BED.



CATAWBA RIVER CROSSING NEAR FORT MILL, S. C., SHOWING TEMPORARY STRUCTURE NEARING COMPLETION.



CATAWBA RIVER CROSSING NEAR FORT MILL, S. C., SHOWING STEEL SPANS BEING LIFTED FROM RIVER BED TO BE REPLACED IN PERMANENT STRUCTURE.

CHARLESTON DIVISION.

The first damage on the Charleston Division was done by the tail of the Gulf Coast storm which caused an overflow of the Broad River, near Vein Mountain, N. C., cutting out about fifty feet of embankment on Sunday, July 9th, which was repaired the following day by driving piles and filling in. On Saturday, July 15th, about twenty-four hundred feet of track was washed out at a point fourteen miles west of Charleston. This was cribbed up with cross-ties, and detoured Atlantic Coast Line passenger trains, as well as Southern Railway trains, were handled with little delay.

On the same day the line from Blacksburg, S. C., to Marion, N. C., was put out of service by wash-outs at the west end of the trestle over Buffalo Creek and at the east end of the trestle over Cathies Creek and the wash-out of a fill at a point two miles west of Mooresboro, N. C., and by damages caused by wash-outs and slides on practically all of fifteen miles of track east from Marion. Repairs between Blacksburg and Marion were handled by Trainmaster T. P. Beard and Supervisor I. B. Clontz. The line was opened to Rutherfordton, N. C., on Tuesday, July 18th, and to Marion on Friday evening, July 21st, which was remarkably quick work in view of the necessity for relying upon the materials and forces that could be gathered on the ground with very little help from outside. This work was not only important in itself, but also as affording means for carrying sorely-needed equipment and supplies to the Asheville-Salisbury line.

In the meantime, Superintendent C. P. King was giving personal attention to the Congaree and Wateree River swamps, where the greatest damage was expected. On Tuesday morning, July 18th, the line between Columbia, S. C., and Branchville, S. C., was put out of service by water over the track and structures. The water was nearly three feet deep in the station at Kingville, over six feet deep in the station at Sumter Junction, and nearly eight feet deep on the Wye at Sumter Junction. In Congaree and Wateree swamps the track for a total distance of four miles was washed into the swamp. Repairs were made by building new track as soon as the water had receded, leaving the old track to be recovered later. Trains were operated between Columbia and Branchville at 6 p.m., Tuesday, July 25th, and between Columbia and Sumter and the Catawba River on Thursday, July 27th.

The Howe truss bridge across the Catawba River, two miles east of Catawba Junction, S. C., was washed away at 9:40 a.m., July 17th. This structure con-

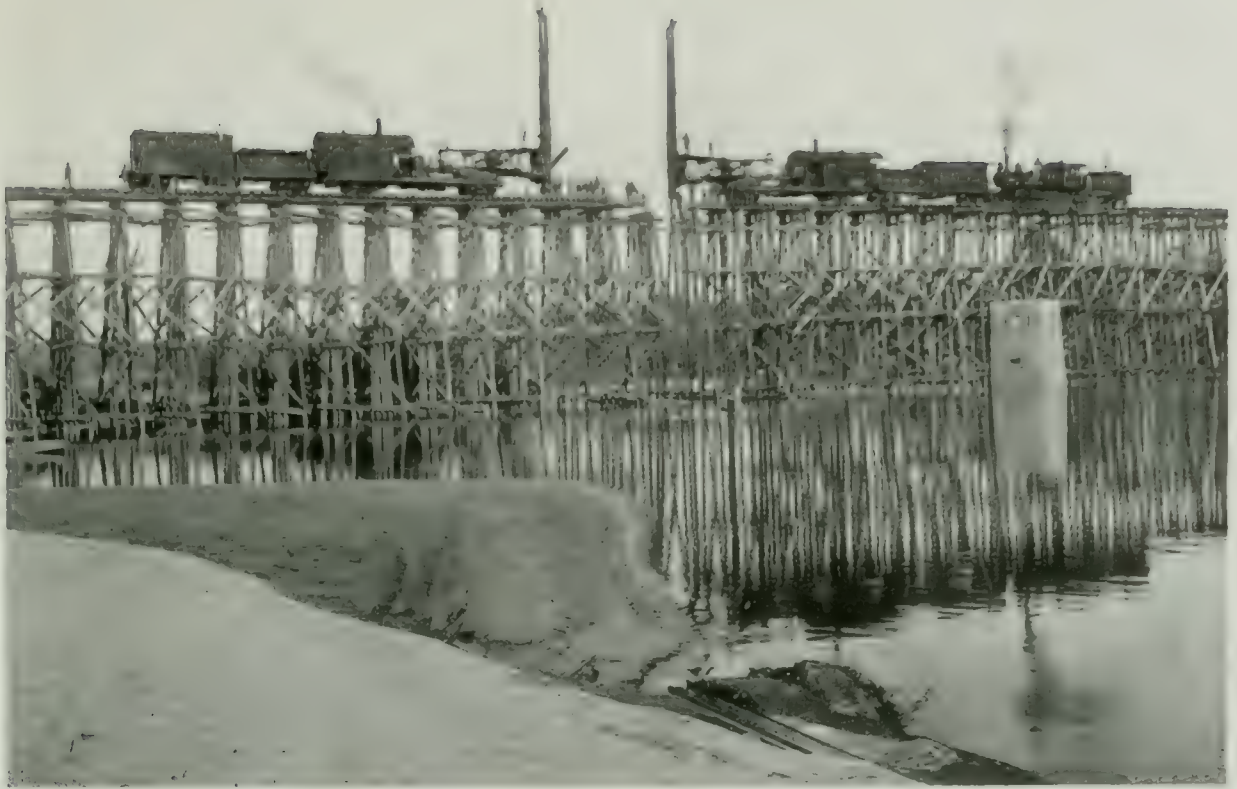
sisted of three spans with a total length of 524 feet, with a trestle approach at the east end 137 feet long and a trestle approach at the west end 200 feet long. The base of the rail was fifty-four feet above the normal water level. The bridge was carried away by being floated off the piers and abutments, carrying the deck and rail, and not even overturning the water barrels used for fire protection. It was broken up on islands and rapids four or five miles below the crossing, and little of the material was recovered. The trestle approaches and about 400 feet of a long forty-foot embankment west of the bridge were also washed out, making the break to be filled by a temporary pile frame bridge 1,333 feet long.

As all available forces were being used on the more important bridges across the Catawba near Belmont, N. C., and near Fort Mill, S. C., it was not until August 7th that work on the temporary bridge was started under the supervision of Resident Engineer J. A. Killian, of the Eastern District. It was pushed forward rapidly with the help of two pile-drivers, and was completed on September 2d, when train No. 113 crossed at 11:36 a.m. Passenger service had been restored, however, on August 1, when a ferry was put in operation.

The temporary structure is being replaced by a steel bridge of nine spans on concrete piers and with a total length of 1,259 feet, giving 408 more feet for the passage of future floods than was afforded by the old bridge and trestles.



CATAWBA RIVER CROSSING NEAR CATAWBA JUNCTION, S. C.—VIEW AFTER WATER HAD RECEDED.



CATAWBA RIVER CROSSING NEAR CATAWBA JUNCTION, S. C., SHOWING TEMPORARY STRUCTURE NEARING COMPLETION.



CATAWBA RIVER CROSSING NEAR CATAWBA JUNCTION, S. C. ANOTHER VIEW OF TEMPORARY STRUCTURE.

SPARTANBURG DIVISION.

The Spartanburg Division was damaged in the valley of the Broad River by washed-out fills and washed and damaged trestles on the Spartanburg-Columbia line between Herbert, S. C., and Columbia, S. C., and by minor damages on the Greenville-Alston line near Alston, S. C., the most serious of which was a large wash-out on the east approach of the Broad River bridge at Alston.

The highest water in the Broad River was about midnight Sunday, July 16th, but, although it was higher than in either 1908 or 1912, the damage to the railroad was less than in the overflows of those years, due to the better construction of trestles and to a heavy growth of Johnson grass on fills. Both of the Spartanburg Division bridges across the Broad River were saved by keeping away the drift.

Superintendent Wm. Maxwell was at Charlotte with Roadmaster J. H. Blackwell and Bridge Supervisor R. E. Connor on Saturday, July 15th. Learning of the flood, they went at once to Spartanburg and organized reconstruction work, which was carried on from both ends of the line between Herbert and Columbia and at intermediate points where forces were available. The most serious damage was about nine miles west of Columbia, where about five hundred feet of fill and part of a ballast deck trestle had been washed away. The track between Spartanburg and Herbert was not put out of operation and trains were continuously operated between these points. On July 20th, service was extended to Blair, on July 21st to Dawkins, on July 25th to Alston, and on July 26th to Columbia. The Greenville line was operated continuously between Greenville and Newberry, from which point trains were detoured over the Columbia, Newberry & Laurens Railway into Columbia. On July 26th service was resumed through Alston to Columbia.

HENDERSONVILLE-LAKE TOXAWAY LINE.

The story of the Transylvania Division was a repetition, on a smaller scale, of the stories of the other lines in western North Carolina, with slides and washed-out fills and trestles on practically every mile of the line. The officers of the Transylvania Division were badly handicapped during the first two weeks after the flood by inability to get materials through from the Asheville Division by way of Hendersonville due to the paramount necessity of concentrating effort on the more important lines. As soon as conditions were such that materials and equipment could be spared they were sent to the Transylvania Division, but, during the first two weeks the materials available were only such as were on hand along the line, and logs cut from the woods.

Superintendent C. C. Hodges got the work started at once with the men and materials available. The same general methods were used as on the Asheville-Spartanburg line. The line from Hendersonville to Brevard was opened for traffic on Saturday, July 22d, was extended to Rosman on July 24th, and on Saturday, August 7th, through service was restored the entire distance between Hendersonville and Lake Toxaway.

COSTER DIVISION.

The storm record of the summer of 1916 as affecting the Southern Railway was completed on August 3d, when a torrential rainfall over an area about fifteen miles in diameter put the Knoxville Middlesboro line of the Coster Division out of operation between Williams Springs, Tenn., and Clouds, Tenn. The character of the damage was similar to that done by the July storm on the mountain lines of the Company in western North Carolina. Embankments were washed out and cuts were filled with mud, rocks, logs and trees brought down by slides from the mountains. The worst break was at a point between Lone Mountain Tunnel and Tazewell, Tenn., where a fill was washed out to a depth of fifty-five feet for a distance of 180 feet.

Restoration work, hampered somewhat by the absence of Coster Division forces still working on the Asheville and Knoxville Divisions and by the fact that practically all of the trestle timber on the Division had been shipped to the Knoxville Division, was started from both ends. The forces working from the south were under the personal direction of Superintendent W. M. Deuel, with Trainmaster W. L. Hickey, Roadmaster J. P. Hannah and Track Supervisor John Lilly. Those working from the north end were under George Deuel, General Yardmaster at Tiprell. Bridges and Buildings Supervisor R. E. Price took charge of the work of the bridge gangs as soon as he was released from the Asheville Division. Rapid progress was made, and the line was restored to operation on August 11th.

TELEGRAPH SERVICE.

Communication with flooded areas and the direction of repair work were made difficult during the days immediately following the storm in the Carolinas by the condition of the telegraph and telephone wires. Lines were broken and service was cut off or seriously crippled throughout a broad belt extending from the vicinity of Charleston, S. C., nearly to Morristown, Tenn.

The wires between Charlotte, N. C., and Greenville, S. C., were interrupted on July 15th, when the line was broken at many points, the most serious break being at the Catawba River, near Belmont where the bridge washed away on the evening of July 16th. All these breaks except that at Belmont were repaired by the night of July 16th. At Belmont, gangs of men with necessary materials were on both sides of the river on the morning of the 17th, but it was not until July 18th that the first wire was put across. Additional wires were gotten over the next day and a cable was put across on July 20th.

The main line between Charlotte and Columbia was interrupted on July 15th by numerous pole breaks scattered between Charlotte and Winnsboro. These were restored on the night of July 15th, but service on this line was again interrupted on July 17th, when the bridge across the Catawba River between Fort Mill and Rock Hill, S. C., was washed away. Men and materials were on the ground on the following morning and service was restored on July 20th.

The line between Rock Hill and Kingville was interrupted on July 20th by the bridge over the Catawba River at Catawba Junction washing away and by the bridge over the Wateree River, near Kingville becoming submerged on July 19th. Service was restored as soon as the water receded sufficiently on July 24th. This line was also submerged near Kingville for a distance of two miles July 20th. Service was restored July 21st.

The line from Columbia to Spartanburg was broken on July 16th by five miles of line becoming inundated and three miles of it washed away along the Broad River between Shelton and Austin. Service was restored when the water receded sufficiently on July 23d.

The line between Spartanburg and Asheville was only slightly damaged by scattering breaks and small wash-outs. Service was restored as fast as men could walk over the line from Spartanburg to Asheville on July 18th.

The line between Asheville and Salisbury was interrupted July 16th at various scattered points and 193 poles were washed away, the largest break being at the Catawba River, near Eufola, where approximately three miles of pole line went down. Temporary service between Asheville and Salisbury was opened on July 24th, but, in the meantime, a temporary telephone line had been built between Old Fort and Ridgecrest, establishing communication between headquarters at Old Fort and the working forces over the mountain.

The line between Asheville and Morristown was most seriously damaged. Six hundred poles were washed away or washed down along the French Broad River, over five hundred of which were completely lost. Temporary service was opened up on this line on July 25th.

The line between Hendersonville and Lake Toxaway was slightly damaged between Rosman and Lake Toxaway, twenty poles being washed away. This line was restored for temporary service on July 24th.

The line between Siloam and North Wilkesboro was interrupted on July 16th along the Yadkin River, when forty-two miles of pole line was washed away, making necessary 698 new poles in that section. Temporary service was restored on this line on July 25th.

With communication cut off to points in the flooded territory and the lines between the North and South crossing the flooded territory out of service, the problem of getting reports of damage and directing repairs was difficult. On Sunday morning, July 16th, the Washington offices were in communication with Asheville over a wire set up through the West to Atlanta and a telephone circuit from Atlanta to Asheville. During the period Washington was cut off from Columbia communication was established through Atlanta by way of Jesup and Savannah, Ga. One of the most difficult temporary circuits undertaken was to enable the dispatcher at Charlotte to reach the territory south of the wash-out at the Catawba River bridge, near Belmont, only ten miles south of Charlotte. This was accomplished by using telephone wires from Charlotte by way of Raleigh, Richmond, Washington, Philadelphia, Pittsburgh, Cincinnati, Nashville, Atlanta, Augusta and Spartanburg.

EQUIPMENT AND MATERIALS.

Not the least of the tasks thrown upon the Southern Railway organization by the flood was the assembling of equipment and materials. This was organized by Vice President and General Manager Coapman, and was done so efficiently that equipment, lumber and other supplies were on their way before the waters had receded, and there was no substantial delay at any accessible point for lack of anything that was needed. Such things as could be obtained locally were bought by the men in charge of the work in the field, but the greater part of the purchases were made from Washington by Purchasing Agent C. R. Craig and Tie and Timber Agent W. F. H. Finke, under direction of Vice-President Spencer on information furnished by General Superintendent of Transportation G. W. Taylor, and Assistant to General Manager W. M. Netherland. In addition to this, Mr. Taylor had charge of getting the equipment and materials to the points where needed and supervised the movement of the vast volume of traffic that had to be detoured from the broken lines.

For the efficient distribution of materials and supplies distribution headquarters were established at Spencer, N. C., under General Storekeeper J. W. Gerber; at Hayne, S. C., under Engineer Maintenance of Way R. D. Tobien, of the Southern District; at Asheville, N. C., under General Superintendent G. R. Loyall and Engineer Maintenance of Way J. B. Akers, and at Knoxville under Superintendent O. B. Keister. The difficulties in the way of the prompt assembly and distribution of supplies were greatly increased by the breaks in the Company's lines, isolating much of the territory from the markets north, east and south, from which a large percentage of the materials needed were drawn. The difficulty of supplying the Asheville-Salisbury line between Statesville and Ridgecrest was particularly great until the line of the Charleston Division from Blacksburg, S. C., to Marion, N. C., had been restored to service so that shipments could be sent in that way.

In the case of metal materials for use south and west of the breaks the difficulty of transportation was met by the use of ferries constructed at the Catawbias, where transfer of small packages of hardware were made; by purchases from concerns in various Southern cities, and from neighboring railroads in small lots, and by the movement over foreign lines of materials purchased in northern and western markets.

The first report indicating the extent of damage and furnishing a key to the quantity and class of materials that would be required was received the evening of July 16th. Instructions were immediately given for the movement of reserve supplies on the railroad to the points where they were needed. These were sufficient to meet first requirements, but large additional purchases were necessary, and on the morning of the seventeenth orders were placed by telegraph and telephone with concerns in various cities, and by the evening of the seventeenth there were moving in the direction of the flooded districts a baggage-car load of rope, blocks, nails and bridge bolts by train No. 29 from Washington; from Trenton, N. J., three pieces $\frac{3}{4}$ -inch steel wire cable (each one-third of a mile in length),

for use in the construction of ferries at the three Catawbases; from Norfolk, Va., blocks, pulleys and rope; from St. Louis, Mo., bridge washers in large quantities; from Philadelphia, Pa., boat spikes; from Trenton, N. J., bridge bolts and washers; from Richmond, Va., fifteen hundred kegs track spikes and one hundred kegs boat spikes. All shipments were made by express or special freight service, and were delivered at Salisbury on the eighteenth and nineteenth. In the few days following large shipments of all kinds of roadway and bridge and building materials and tools of every description were made from Richmond, Pittsburgh, Philadelphia, Atlanta, Chattanooga, Louisville and Baltimore, and ball-bearing 25 and 35-ton jacks from Boston. Notwithstanding the over-booked condition of the steel market, shipments were made in one and three days from Pittsburgh of two carloads consisting of 25,000 bridge bolts; from St. Louis 30,000 malleable bridge washers, and from other points track spikes, boat spikes and nails in sufficient quantities for immediate requirements.

The lumber and pile requirements for reconstruction work at the north ends of breaks and points north were loaded and shipped from stock on hand in the Northern District, or purchased in small lots where it could be found in that territory, and by the purchase by Mr. Taylor of 2,800 piles, ranging from forty to ninety feet in length, from concerns at Norfolk and Pinners Point, some of which were being held for shipment to the Panama Canal. The loading of the piles bought at Norfolk and Pinners Point was placed in the hands of General Agent Candler; loading began at once and they were handled by special trains, and were the first of that character of material to reach the flooded district in substantial quantities.

Upon receipt of a report of conditions at Asheville and east of that point, an order was placed with a Louisville concern for 900 kegs of track spikes, 200 kegs of boat spikes, 400 kegs of nails and a general assortment of tools, making, all told, six carloads. The order was placed over long distance telephone the morning of July 21; loading was completed by 6 p.m., and the shipment moved out of Louisville as a special train. It was delivered at Knoxville the next morning and immediately moved to Asheville via Louisville & Nashville Railroad to Murphy, N. C., and Murphy Division to Asheville.

An order for a 96,000-gallon water tank to replace one destroyed at Marshall, N. C., was placed July 20th. Shipment was made from Batavia, Illinois, July 25th, and it was delivered by the time the track was restored at that point. Pumps to replace those washed away with pump houses at Bridgewater and Connelly Springs, N. C., were shipped from Chicago by express July 21st, and delivered in ample time to take care of the situation. For the restoration of the water station at Elkin, N. C., a 60,000-gallon tank was shipped from Baltimore; pumps from Dubuque, Ia., by express, and boilers from South Richmond shops. Thirty-nine carloads of cement located en route and being loaded at cement plant at Leeds, Ala., for various work on the system were diverted and moved to Hayne, S. C., and distributed from that point for use in the flood district.

In addition to the above, the following are some of the items that were pur-

chased from various concerns, transferred from other divisions, or manufactured in our shops:

- 3 Carloads of blasting powder and dynamite, with caps and fuse, for use in the Old Fort territory, shipped from Richmond, Va.;
- 300 Gasoline torches for use in night work at various points, shipped from Richmond, Washington, Baltimore and Philadelphia;
- 8 Carbide high powered lights, shipped from Baltimore;
- 50 Drag scoops for grading work in Old Fort territory, shipped from Atlanta and Hickory, N. C.;
- 300 Wheelbarrows for grading work in the vicinity of Old Fort, shipped from Atlanta;
- 8 Carloads of sheet-steel piling for the building of coffer-dams in connection with construction of new piers for bridge at Eufola-Catawba, shipped from Buffalo, N. Y.;
- 16 Steel coal carts for use in reconstruction work and for handling coal at Old Fort were manufactured at our Roadway Shops—six of which were shipped promptly upon placing of order and the balance a few days later;
- 28 Lever-cars and 57 push-cars, manufactured at our Roadway Shops and shipped to various points for use in reconstruction work;
- 48 Switch stands, together with switches, frogs, and a substantial supply of tools were turned out and shipped promptly upon request from our Roadway Shops;
- 6 Motor inspection cars, by express from Rockford, Illinois, and Three Rivers, Michigan;
- 2,000 Tons new 85-pound rail furnished from Eastern and Southern mills. (Only a part of this rail was used in the flooded district.)
- 500 Tons of 56 and 60-pound relay rail was loaded and shipped from the Richmond and Norfolk Divisions, and 18,000 cross-ties from the Richmond Division to the Winston-Salem Division for use in the restoration of that line.
- 28 Girder bridge spans shipped from Roanoke, Va., for use in rebuilding bridges. Shipments completed in two weeks.

The piles bought included 6,346 piles from forty to ninety feet long, moved on 427 cars and shipped from Slidell, La., Jacksonville, Fla., Norfolk and Pinners Point, Va., Baltimore, Md., Norfolk & Western Railway points and various points in Virginia, Georgia and South Carolina.

Purchases of lumber amounted to 6,350,000 feet, shipped on 525 cars from points in North Carolina, Virginia, South Carolina, Georgia, Florida, Mississippi and Baltimore, Md.

Spencer, South Richmond and Coster shops were put to work manufacturing drift bolts, and an ample supply, consisting of thousands, was turned out and all orders filled promptly. A substantial supply of bridge bolts was also manufactured at these shops.

In answer to our appeal for help, the Pennsylvania Railroad made prompt shipment of 2,200 bridge bolts and 50 kegs of boat spikes; the Atlanta Terminal

Company shipped 32 kegs of track spikes; the Georgia Southern & Florida 100 kegs of track spikes; the Georgia Railroad 100 kegs of track spikes, and the Georgia Railway & Power Company 123 kegs of track spikes. Forty-eight carloads, consisting of 2,759 feet of 48, 42 and 30-inch concrete pipe, were loaded by the Construction Department and shipped to Asheville for reconstruction work in that vicinity. This pipe had previously been shipped for additional main line work south of Greenville, S. C. Seventeen carloads, consisting of 950 feet of 48, 42 and 30-inch concrete pipe were purchased from a Memphis concern and shipped to Asheville.

Equipment purchased for repair work included one locomotive pile-driver, four ditching machines, eight air dump-cars (new), 19 air dump-cars (second-hand), and four spreader cars.

HOW THE SOUTHERN PEOPLE AND OTHER RAILROADS HELPED.

It would have been impossible to have restored the wrecked lines of the Company within the short time that was required for the work without the hearty co-operation of the people in the flooded communities. Sawmills and lumber companies and manufacturers of supplies put off all other orders and worked day and night turning out materials for the Company; large employers of labor turned over their organizations, and thousands of men responded as individuals to the call of the Company for help. While all of these were paid for their services, and while the money disbursed was of substantial help to the flood-stricken communities, the spirit of helpful co-operation that was everywhere manifested was none the less appreciated by the Company.

Substantial help was also received from other railroad companies which responded to the utmost of their ability to requests for assistance. Equipment and forces were sent by the Cincinnati, New Orleans & Texas Pacific Railway Company, Alabama Great Southern Railroad Company, Mobile & Ohio Railroad Company, Norfolk & Western Railway Company, Baltimore & Ohio Railroad Company, Pennsylvania Railroad Company, Norfolk Southern Railroad Company and Central of Georgia Railway Company. Typical of the spirit in which other companies responded to calls for help was the action of the Baltimore & Ohio Railroad in taking a pile-driver off of work on its own lines and running it special with its full working crew from Clarksburg, W. Va., to the Potomac Yards. The service which it rendered was invaluable. The New Orleans & Northeastern Railroad Company was particularly helpful in the prompt movement of piles by special train from points on its lines.

KEEPING THE WHEELS MOVING.

One of the most difficult problems with which the Southern Railway organization was confronted during the flood and while repairs were under way was that of keeping traffic moving. The length of line put out of operation by the Gulf Coast storm was 140 miles, and the length put out by the storm in the Carolinas was 686 miles, making a total of 826 miles of railroad that were out of service for longer or shorter periods during the month of July. But this mileage, great as it was,

did not represent the maximum effect of the storm from an operating standpoint, for the cutting of the lines south of Charlotte by the washing away of the bridges across the Catawba River, on the Charlotte, Columbia and Charleston Divisions practically put all of the lines of the railroad east of the Blue Ridge Mountains out of service for through business and made it necessary to detour all of the vast volume of through traffic which otherwise would have moved over the Washington-Atlanta main line, including such important passenger trains as Nos. 35, 36, 37 and 38, in addition to a large number of freight trains.

Connecting railroads, most of which had also suffered more or less from the storm, were helpful to the extent of their facilities, and Southern Railway also aided them in detouring around breaks in their lines wherever practicable. The companies that were helpful in this movement of traffic under difficulties included the Cincinnati, New Orleans & Texas Pacific Railway Company, the Alabama Great Southern Railroad Company, Norfolk & Western Railway Company, Atlantic Coast Line Railroad Company, Seaboard Air Line Railway Company, Louisville & Nashville Railroad Company, Nashville, Chattanooga & St. Louis Railway Company, Georgia Railroad, Columbia, Newberry & Laurens Railway Company and the Winston-Salem Southbound Railway Company.

Without neglecting the primary duty of supplying the working forces on the washed-out lines with everything that they needed, every effort was made to reduce to a minimum delays and inconvenience to travelers and shippers. One of the greatest difficulties was the handling of coal traffic originating on the Appalachia Division and normally moving in large volume over the Knoxville Division to Asheville. This was done so efficiently as not only to maintain adequate supplies of Company coal on all parts of the system, but also to keep up the supply for industries—fuel coal for plants in the Carolinas south of Charlotte being moved over the Knoxville and Atlanta Divisions and thence north over the Charlotte Division. This put an unprecedented strain on the Atlanta Division for several weeks, and this large volume of traffic was handled smoothly, promptly and without accident, in a way highly to the credit of Superintendent Norris and every man on the division.

The task of keeping the working forces supplied and moving an abnormally heavy volume of passenger and freight traffic was in charge of General Superintendent of Transportation G. W. Taylor, Superintendent of Freight Transportation W. M. Cowhig and Superintendent of Passenger Transportation H. E. Hutchens. These men were ably supported by the superintendents and the entire personnel of the Transportation Department, including train crews and station agents, and also by the transportation officers of connecting lines. The record made in the handling of this detoured traffic reflects the high efficiency of the Southern Railway Transportation Department, for at no point did working forces have to wait for materials or supplies, and, notwithstanding the crippled condition of the lines during the month of July, the gross revenues for the month showed an increase of 3.43 per cent over July, 1915, and loss and damage liabilities incurred during the month were not abnormal.

THE MEN WHO TOOK THE LEAD

Without minimizing the great value of the help received from outside sources, full credit for the remarkable record made rests with the Southern Railway organization. Every one, from vice-presidents down to track laborers, performed his full duty. There were so many instances in which subordinates assumed responsibilities and showed initiative and executive ability in matters entirely outside of their regular duties that to refer to them all would involve a detailed account of the service of almost every gang and train crew engaged in the work. Taking into consideration the efficiency maintained throughout the entire organization, shown by the increased revenues in spite of our badly crippled lines, practically every man in the employ of the railroad should have his name on the honor roll. The following includes only those who led the repair forces in the work of reconstruction:

OPERATING OFFICERS AND STAFF IN GENERAL CHARGE.

E. H. COAPMAN.....	Vice-President and General Manager
G. W. TAYLOR.....	General Superintendent of Transportation
W. M. COWHIG.....	Superintendent of Freight Transportation
H. E. HUTCHENS.....	Superintendent of Passenger Transportation
B. HERMAN.....	Chief Engineer, Maintenance of Way and Structures
T. H. GATLIN.....	Assistant Chief Engineer, Maintenance of Way and Structures
A. B. ILSLEY.....	Engineer of Bridges
J. W. CONNELLY.....	Chief Special Agent
W. A. APPLGATE.....	Chief Surgeon
W. H. POTTER.....	Superintendent of Telegraph
J. A. JONES.....	Chief Clerk to Superintendent of Telegraph

OFFICERS AND STAFF IN CHARGE OF PURCHASING AND DISTRIBUTING SUPPLIES.

H. B. SPENCER.....	Vice-President
W. M. NETHERLAND.....	Assistant to General Manager
C. R. CRAIG.....	Purchasing Agent
J. W. GERBER.....	General Storekeeper
W. F. H. FINKE.....	Tie and Timber Agent
A. T. MASON.....	Chief Clerk to Assistant to General Manager
L. H. SKINNER.....	Chief Clerk to Purchasing Agent
W. W. LIVINGSTON.....	Chief Clerk to General Storekeeper
W. F. HURD.....	Chief Clerk to Tie and Timber Agent
W. J. BOLIN.....	Supervisor of Roadway Stores

NORTHERN DISTRICT.

R. E. SIMPSON.....	General Superintendent
G. E. BUCKLEY.....	Engineer Maintenance of Way
G. L. SITTON.....	Resident Engineer

WINSTON-SALEM DIVISION.

J. S. BERGMAN.....	Superintendent
A. A. WELLS.....	Roadmaster
C. W. ANDERSON.....	Assistant Roadmaster
J. A. BOLICH.....	Trainmaster
J. L. CLEMENTS.....	Agent, North Wilkesboro, N. C.
J. S. WALKER.....	Agent to General Superintendent
J. B. MARTIN.....	Supervisor Bridges and Buildings
J. H. MEDEARIS.....	Supervisor Bridges and Buildings

EASTERN DISTRICT

W. N. FORTACRE General Superintendent
J. S. LEMOND Engineer Maintenance of Way
J. A. KILLIAN Resident Engineer
R. F. FZZELL Principal Assistant Engineer, Construction Department
A. Y. WILLARD Assistant Engineer, Construction Department
P. R. SHIELDS Assistant Engineer, Construction Department
E. A. FISH Assistant Engineer, Construction Department
A. V. HOOKS Assistant Engineer

CHARLOTTE DIVISION.

H. L. HUNGERFORD Superintendent
D. A. BALLENGER Roadmaster
E. L. BEASLEY Roadmaster (Columbus Division)
T. E. SHARPE Supervisor Bridges and Buildings
G. W. WELKER Supervisor Bridges and Buildings (Washington Division)
E. L. COCHRAN Supervisor Bridges and Buildings (Atlanta Division)

COLUMBIA DIVISION.

J. W. WASSUM Superintendent
P. B. LUM Assistant Engineer of Bridges
J. O. HUNT Engineer, Construction Department
B. M. THOMPSON Engineer, Construction Department
J. R. FOWLKES Roadmaster
J. L. MAUNEY B. & B. Supervisor

CHARLESTON DIVISION.

C. P. KING Superintendent
T. P. BEARD Trainmaster
N. J. HAMMOND Roadmaster
J. M. COTHRAN Supervisor Bridges and Buildings
I. B. CLONTZ Track Supervisor
J. H. BURNEY Track Supervisor
A. M. PATRICK Track Supervisor

SPARTANBURG DIVISION.

WILLIAM MAXWELL Superintendent
G. M. BISHOP Trainmaster
J. F. GAFFNEY Trainmaster (Columbia Division)
J. M. PARKER Chief Dispatcher
J. H. BLACKWELL Roadmaster
R. E. CONNER Supervisor Bridges and Buildings
M. T. ROBERTS Track Supervisor
T. L. DILLARD Track Supervisor
E. H. SMITH Track Supervisor (Columbia Division)
E. E. SMITH Track Supervisor (Columbia Division)
M. DUNCAN Track Supervisor (Columbia Division)

MIDDLE DISTRICT.

G. R. LOYALL General Superintendent
J. B. AKERS Engineer M. of W.
ALEXANDER HARRIS Resident Engineer
C. L. DOOLEY Chief Clerk to General Superintendent

ASHEVILLE DIVISION.

(Exclusive of Line Between Salisbury and Ridgecrest.)

F. S. COLLINS Superintendent
B. M. SMITH Roadmaster
W. W. REISTER B. & B. Supervisor
A. A. QUEEN B. & B. Supervisor

J. C. TOWNSEND.....	Supervisor
Z. L. MOBLEY.....	Supervisor
A. M. GREENFIELD.....	Supervisor (Appalachia Division)
W. A. STEWART.....	Supervisor (Memphis Division)
J. T. COX.....	B. & B. Supervisor (Mobile Division)

LINE BETWEEN SALISBURY AND RIDGECREST.

T. H. GATLIN.....	Assistant Chief Engineer, M. W. & S., in General Charge
B. J. CARLIN.....	Chief Clerk
V. O. HILL.....	Stenographer
E. D. DICKERSON.....	Force Chart Clerk
F. E. DRUMWRIGHT.....	Operator

In Direct Charge of Temporary Bridge, Catawba River.

C. G. ARTHUR.....	Superintendent (Richmond Division)
N. L. HALL.....	Bridge Supervisor (Danville Division)

Construction and Track Work.

A. HARRIS	Principal Assistant
A. P. NEW.....	Roadmaster
J. A. WALKER.....	Assistant Roadmaster
J. D. LEONARD.....	Assistant Roadmaster
E. E. BUMGARNER.....	Assistant Roadmaster
J. M. BOLES.....	Supervisor (Track)
W. T. MCCAIN.....	Supervisor
J. E. HOWIE.....	Supervisor
J. A. MARSTELLER.....	Supervisor
S. G. HENDLY.....	Supervisor (Steam Shovel)
A. D. BARFIELD.....	Supervisor
W. T. DOBYNS.....	Supervisor
THOS. RILEY	Supervisor
C. R. KINCAID.....	Supervisor (Bridges)
G. H. FLYNT.....	Supervisor (Bridges)
R. E. PRICE.....	Supervisor (Bridges)
A. A. QUEEN.....	Supervisor (Bridges)

Contractors.

H. C. MCCRARY.....	Contractor (Rock Work)
CORNELL-YOUNG Co.	Contractor (Steam Shovel Work)
BOXLEY, GOODWIN & GRAY.....	Contractor (Steam Shovel Work)
CONSOLIDATED ENGINEER CO. (GEO. P. ZOUCK).....	Contractor (Bridge Work)

Transportation Department.

H. F. PAYNE.....	Trainmaster
R. K. MCCLAIN.....	Dispatcher
J. C. MORRIS.....	Dispatcher
J. D. MOSS.....	Dispatcher
W. A. DYSART.....	Yardmaster

Material, Supplies and Forwarding.

O. B. LACKEY.....	In Charge Material and Forwarding Department
C. P. KERLEY.....	Roads, Trails and Hauling
I. H. GREEN.....	Timber Field Agent
J. I. LEE.....	Timber Field Agent (Estimator)
F. T. MILLER.....	Receiving and Forwarding Agent, Ridgecrest
R. H. SMALL.....	Forwarding Agent, Marion
S. M. SHARPE.....	Advance Agent
F. A. SHARPE.....	Delivery Agent
W. H. SULLIVAN.....	Team Dispatcher
G. N. SHAW.....	Receiving Agent, Dendron
J. H. MONROE.....	Storekeeper, Old Fort

O. H. BEASLEY.....	Assistant Storekeeper, Old Fort
A. B. GARRETT.....	Assistant Storekeeper, Old Fort
R. O. CRAWLEY.....	Assistant Storekeeper, Old Fort
H. B. MCCOY.....	Assistant Receiving and Forwarding Agent, Ridgecrest
E. S. DAVIS.....	Assistant Receiving and Forwarding Agent, Ridgecrest
W. S. GRAYLY.....	Forwarding Agent, Marion
J. S. TROGDEN.....	Receiving Agent, Graphiteville
W. O. LAVENDAR.....	Foreman of Teams
J. C. BOWMAN.....	Chief Light Tender
R. B. LEINSTER.....	Corral Foreman
W. H. BOYLEAN.....	Accountant
J. W. MITCHELL.....	Accountant

Records, Time and Accounting.

D. H. BEATTY.....	Chief Timekeeper
D. H. REED.....	Traveling Auditor
E. I. STACEY.....	Traveling Auditor
E. F. CARDEN.....	Accountant

Engineering Department.

H. H. POWELL.....	Field Engineer
A. B. PIERCE.....	Assistant Engineer
G. P. ASBURY.....	Assistant Engineer
H. D. SCANTLIN.....	Assistant Engineer
A. A. JOHNSON.....	Assistant Engineer
H. A. ADAMS.....	Assistant Engineer
J. H. DENNY.....	Assistant Engineer
W. C. CAYE.....	Assistant Engineer
J. N. PEASE.....	Assistant Engineer
F. J. TORRAS.....	Assistant Engineer
E. G. TOWERS.....	Assistant Engineer
J. A. DICKINSON.....	Assistant Engineer
C. NORRIS.....	Assistant Engineer

H. K. MURPHY.....	Paymaster
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Sanitation, Policing and Claims.

DR. B. L. ASHWORTH.....	Physician, Sanitation
DR. D. M. MCINTOSH.....	Physician, Sanitation
J. A. COLEY.....	Assistant Special Agent (Policing)
J. A. BARNES.....	Special Officer (Policing)
W. M. ALGOOD.....	Special Officer (Policing)
J. RAY.....	Special Officer (Policing)
W. G. ANDERSON.....	Claim Agent
L. S. PARSONS.....	Claim Agent

Commissary Department (Sands & Company).

J. M. DARDEN.....	In General Charge
F. H. SNIPES.....	District Manager
L. C. VAUGHN.....	District Manager

KNOXVILLE DIVISION.

(Line Between Asheville and Morristown.)

O. B. KEISTER.....	Superintendent
J. E. PLATT.....	Roadmaster
J. H. RIGBY.....	Assistant Roadmaster
J. A. WALKER.....	Assistant Roadmaster (Birmingham Division)
ROBERT SMITH.....	Track Supervisor
W. J. THORNBURG.....	Track Supervisor
J. L. SELF.....	Track Supervisor
R. L. COBBLE.....	B. & B. Supervisor
N. W. MOORE.....	Track Supervisor

COSTER DIVISION.

W. M. DEUEL..... Superintendent
J. P. HANNAH..... Roadmaster
R. E. PRICE..... B. & B. Supervisor
A. E. ESCHMAN..... B. & B. Supervisor (K. & A. Railroad)
JOHN LILLY..... Track Supervisor

TRANSYLVANIA DIVISION.

C. C. HODGES..... Superintendent
A. H. CALDWELL..... Roadmaster
C. T. VANCE..... Supervisor

SOUTHERN DISTRICT.

J. H. STANFIEL..... General Superintendent
R. D. TOBIEN..... Engineer Maintenance of Way
S. J. BUCKLEY..... Resident Engineer

ATLANTA DIVISION.

E. E. NORRIS..... Superintendent
C. E. ERVIN..... Roadmaster
J. A. JOHNSON..... B. & B. Supervisor
E. L. COCHRAN..... B. & B. Supervisor
N. J. STEELE..... Track Supervisor
W. E. SMITH..... Track Supervisor
J. N. BIDDY..... Track Supervisor
J. T. TOWNSEND..... Track Supervisor

BIRMINGHAM DIVISION.

H. H. VANCE..... Superintendent
A. P. NEW..... Roadmaster
J. A. WALKER..... Assistant Roadmaster
M. W. SELF..... B. & B. Supervisor
R. C. HOLLAND..... Track Supervisor
A. D. BARFIELD..... Track Supervisor
T. W. EVANS..... Track Supervisor
J. H. WATERS..... Track Supervisor
W. T. McCAIN..... Track Supervisor

COLUMBUS DIVISION.

H. G. FARRAR..... Superintendent
E. L. BEASLEY..... Roadmaster

MOBILE DIVISION.

O. K. CAMERON..... Superintendent
M. E. MADDEN..... Trainmaster
J. C. AUSTIN..... Trainmaster
A. P. BRADLEY..... Roadmaster
R. J. JONES..... B. & B. Supervisor
J. T. COX..... B. & B. Supervisor
A. G. COLQUITT..... Track Supervisor
O. L. HITCHCOCK..... Track Supervisor
H. L. SANDERS..... Track Supervisor
S. E. SIMS..... Track Supervisor
T. J. DORAN..... Track Supervisor
W. P. WEBB..... Agent, Mobile, Ala.

NORTHERN ALABAMA RAILWAY.

J. W. JOHNSON..... Roadmaster
L. M. JOHNSON..... Track Supervisor

THE APPRECIATION OF THE PUBLIC

What the Newspapers Said of the Work of Restoration

The helpful spirit of the Southern people was shown not only in the work of restoration, but also in the patience with which they endured the inevitable delays in freight and passenger transportation and the appreciation of the work of the Company expressed on all sides. This was manifested particularly in the newspapers of the South, as is illustrated in the following editorial comment:

VOICE OF THE PEOPLE COMPLIMENTS SOUTHERN.

(Asheville (N. C.) *Citizen*, July 24, 1916.)

EDITOR CITIZEN: In a time like this, when all have been called on to try to help the unfortunate, and have responded nobly, it is perhaps invidious to pick out any one person or corporation for especial praise, but from day to day as I hear more of the wonderful work that the Southern Railway has done and is doing to make lighter the heavy burdens these terrible floods have thrown on dwellers in our mountains, I feel that some one should speak the gratitude so many feel to this often vituperated, but nevertheless great and splendid corporation. One of our most honored women of the surrounding country whose family have lived here a part of the season for many years, and who is loved and honored by all who know her, has spoken to me in terms of the deepest gratitude for what they have done in the neighborhood of Fletchers to lighten the sufferings of the people; women and children fed without money and without price, auto service given freely and without stint, every effort made to relieve suffering, had deeply impressed her heart as they have mine. We all of us have seen the unceasing effort far beyond the demands of their own interests to restore normal conditions; the Herculean efforts being put forth to restore communications, and many similar things; all these should make the people of western North Carolina forever grateful. Let us hope that in future we will be more kindly in our judgments of this great railroad, with whose success and efficiency our success is so indissolubly bound up, and that their fine action at this time will be the beginning of an era of more kindly feeling and better understanding between the people and this corporation, from which better understanding only good can result for us all.

CHAS. L. MINOR.

THE SOUTHERN'S EFFORTS.

(Asheville (N. C.) *Citizen*, July 25, 1916.)

The average citizen will readily agree with the sentiments expressed in Dr. Minor's letter to *The Citizen* yesterday wherein he took occasion to compliment the Southern Railway on the heroic efforts it has made to serve the traveling public in spite of the terrific disasters that have overtaken it in so many divisions of its system. From what we can gather from outside newspapers, the losses sustained by the Southern Railway in this section are only a fraction of what it has sustained in other sections of this State, and in other States. The last authoritative statements from railway officials express the opinion that the losses throughout this great system will be near two million dollars, truly an enormous sum when we consider the slim earnings of the Southern during the past ten years.

In spite of their losses, however, the records of the recent flood will go to show that the Southern authorities spent large sums of money to provide automobile transportation, food, hotel accommodations and, in some cases, clothing for the luckless passengers caught on their marooned trains in various sections of the country. The Southern's attentions did not cease there, however, for we are told that word was passed along to officials to look after passengers until they had reached their homes.

Some may say that these things were part of a railroad's duties, but while this may be so to a certain extent, the manner and spirit wherein these duties are discharged count for much. Yet, in spite of these tremendous efforts, there were some disgruntled passengers who unloaded the customary complaints, and who showed no spirit of gratitude whatever. This type can be found in abundance in all walks of life, and their actions occasion no surprise.

With the common run of humanity baiting a railroad and kindred corporations has been rare sport, but occasionally we should stop to take account of what these corporations have done for their respective communities. The average city in the United States can trace the beginning of its industrial prosperity to the approach of railway lines, and this is remarkably true of the territory contiguous to the Southern.

DOING SPLENDID WORK.

(Asheville (N. C.) *Times*, August 11, 1916.)

Really, the intense effort being made on the part of the Southern Railway to re-establish all lines running through this section is deserving of commendation, and yet it is not forgotten that the railway company must do these things in order to re-establish its revenue collection. The "freshet" of July was a serious matter to the railway—but without consideration of expense, men, machinery and money is being used to open the lines.

The *Carolina Mountaineer* (Waynesville), has this paragraph, worth repetition:

"Great praise is due the Southern Railway for its quick work in rebuilding its destroyed lines and re-establishing schedules. It is a great system, and when some

of its parts are out of commission the whole organization suffers, and the people realize what it means to them. On the other hand, it has so many branches and co-operative roads to draw on in time of trouble that it doesn't take long to make repairs and restore bridges."

With one gap yet to be opened— from Ridgecrest to Old Fort, and an army of men at work there, it looks to Asheville like the olden time train service will soon be revived.

(Old Fort (N. C.) *Sentinel*, August 10, 1916.)

Quite often the *Sentinel* has called attention to the Southern Railway's inestimable value to Old Fort, to North Carolina, and the entire South, and has sought to foster a good understanding and fair friendship between the company and the people it serves so well. Hence, we can very appropriately express grateful appreciation for the Southern's help to the community while it is at the same time helping itself in the work of restoring its ruined property. The assistance rendered Old Fort in rehabilitation, and the employment given hundreds of our mountain people is indeed a Godsend. We sympathize with the great corporation in its enormous losses, and we thankfully welcome its construction forces to our town. The Southern Railway stands out as a great and good friend in this time of trouble. And so it has been to the South at all times.

THE TOWN'S OPPORTUNITY.

(Old Fort (N. C.) *Sentinel*, August 17, 1916.)

While Old Fort was considerably hurt by the flood, the damage may redound to its ultimate benefit. As in the case of fires, better structures usually replace those destroyed, so in repairing flood damages it behooves the town and all property-owners directly affected to let the new work show up better than the old. And there should be careful looking forward. This is the psychological time for Old Fort to take a long step to the front.

Intelligent and enterprising town-betterment is right now in order, and beautification is an essential part of the betterment scheme. The land between the two creek beds in the heart of town should be secured by the municipality for park purposes (if our local editor's hint to philanthropic folk goes unheeded), for this will benefit every inhabitant, including some possibly unwilling taxpayers.

The Southern Railway is setting us a magnificent example in how to overcome backsets—make things better than they were before. And having their repair headquarters here is affording means for doing much that is both necessary and desirable.

Some damages have entailed dead losses, and the only thing to do is resolutely to set to work to retrieve the broken fortunes. For all who have suffered we feel the deepest sympathy, but it is for their welfare that the town should go forward.

It takes money to do things, and it takes money to make money. The thing needful is for every man to agree to the forward movement and every man to hold up his chin.

One might travel long and far without seeing as many sleeping and dining cars as are packed in Old Fort at present; and he might fare far less sumptuously at many good hotels than he would at one of the Southern's tables spread in this good town for its army of workmen. It is nothing short of amazing the way the Company has measured up to the requirements imposed by the flood. Comfortable, clean beds; an abundance of excellent food, well prepared and appetizingly served; sanitary arrangements of the best standard—such denote the care the Southern is taking of the men who are working day and night to mend the flood-made gaps in its railway.

(Old Fort (N. C.) *Sentinel*, August 31, 1916.)

Fervently do we wish that Uncle Sam would bring Congress and other Government officials to Old Fort that they might learn from the Southern Railway what real efficiency is when it comes to getting work done, and done now. Cutting out red tape and getting right on the job saves lots of time and money.

WELL DONE, TO BE SURE.

(Salisbury (N. C.) *Post*, August 18, 1916.)

The Southern is losing no time in getting its western line opened up. Trains will soon be creeping over the restored track and finding their way into Asheville, and freight and passengers will be making the trip across the mountain.

It was just thirty days ago that the floods did such damage to the Southern, especially its western branch, and it is certainly to the credit of the road and its management that thirty days finds it possible to put trains across the entire route between Salisbury and Asheville.

This means that every man has done his duty, that every man connected with the road has been faithful to the task and has worked feverishly to restore the track and bring about normal conditions. This splendid result shows that the Southern is organized for efficiency, and that the men on whom it depends to do the work are reliable to the utmost and capable of heroic performance. This is true from the General Manager, who took personal charge, down to the humblest worker in the employ of the Company.

Too much can not be said in praise of the men who went to the front in this crisis. The humble laborers who took the instruments of construction in their hands and worked in the pit to bring order out of ruin played a noble part, and they deserve a word of praise which will not be withheld them.

THE BUSY COMMUNITY OF OLD FORT.

(Greensboro *Daily News*, August 26, 1916.)

Old Fort, Aug. 24.—Doubtless towns, like men, may be born great, and it is certain that some achieve greatness. As for Old Fort, a flood was thrust upon it. * * * The town is the pulsing heart of a community of workers variously estimated up to 3,000.

All day long, and all night, with the exception of shifting periods amounting all

told to two hours in the 24, these men are toiling to repair the damage done by the July flood in the narrow valleys and coves along which the railroad penetrates crossing the Blue Ridge. The gangs of workmen are strung along from Bridgewater to Ridgecrest. Out on the line, night is turned into day while the men ply pick and shovel and saw and hammer, steam shovel and derrick, under the light of gasoline and carbide lamps. * * * All day and all night trains are passing to and from the work—for the modern railroader relies largely upon locomotives and rolling stock in the construction of track for locomotives and rolling stock. The steam shovel and the pile-driver are the great tools in which the railroader delights; with these he builds with the rapidity of magic, and upon a sure foundation.

The signs of the storm's devastation, along the railway and the magnificent central highway, up Mill Creek and the Round Knob basin, are practically obliterated; there are scars of it all along, and imagination supplies the details—as to what magnificent destruction was done in a few hours by the team work of raindrops, and what magnificent construction has been accomplished since by Engineer Gatlin, of the Southern, and his army. Mill Creek, it is seen, was a monster, that devoured railway and highway wherever it could reach them. In the lower levels, embankments, "fills," crossing the stream and those supporting the roads against the sides of the mountain, were cut entirely away. * * * Stout trestles have been built, with the pile-driver, in place of all the railroad bridges and their approaching fills; the latter to be filled in with earth, and the former to be replaced by permanent bridges later on. On the higher levels, the side coves that were crossed by great fills 50 feet high or more on the lower side, each was penetrated by a tiny stream. * * * The tiny stream became a torrent, swept both embankments away, left a great gash in the mountain side, destroying both railroad and highway. * * * The Round Knob section of the Southern will be better road than ever, in future.

(Greensboro (N. C.) *Advocate*, August 17, 1916.)

* The destruction of railway bridges and road-beds by the great floods has delayed railway traffic and entailed great inconvenience and hardship to the people at large. We want to commend the courage and promptness of the Southern Railway authorities and wrecking crews for the splendid service rendered in the face of a great calamity, and the rapid resumption of through traffic by rushing to completion the temporary trestles at Belmont, Catawba, Fort Mill and other points. This was made possible because efficient bodies of trained men were in reserve and ready on the moment to take up the task of rebuilding just as soon as the flood passed.

A PUBLIC BOW TO THE SOUTHERN.

(Charlotte (N. C.), *Observer*, August 1, 1916.)

A "Traveling Man," who failed to sign his name, writes *The Observer* in praise of the excellent record made by the Southern Railway Company in restoring traffic over the Catawba bridge at Belmont. The writer thought the Company displayed more than ordinary foresight in looking after the interests of the passengers and cites the building of the board walks from track to ferry boat on either side the

stream, the supplying of automobile passenger service and messenger boys to carry baggage, the calling in of all the passenger solicitors and placing them at the service of the travelers at the scene of the trouble and of the personal supervision by the division passenger agent of all things looking to the comfort of the patrons of the line. All that this traveling man has to say is deserved and he could have said much more and still not have said too much. The plain fact is that the Southern Railway has made a record at the Belmont bridge that has been seldom equaled in the history of railroad trouble management in this country. The break covered a very wide stretch of river and flats, and the level of the bridge was far above the stream, making the matter of the transfer one of peculiar difficulties and involving an expense that under ordinary circumstances would have been regarded as serious. But the transfer arrangement was handled in a way that entailed the minimum of inconvenience upon the people, while in the meantime there was prosecuted day and night, without cessation, and mostly through storm and rain, the reconstruction of the trestle by which through service could be resumed. This work was accomplished Monday, two weeks to the day from the destruction of the original bridge. Those familiar with conditions at this bridge had set three weeks as the earliest date upon which a trestle could be completed, so that the Southern construction force forestalled expectations by just a week. It must be remembered, also, that during this time the Southern had not only this one trouble on its hands, but was transferring passengers and reconstructing trestles at two other points on the Catawba but a few miles apart, and did not work under the advantage it might have had in the concentration of its forces at one point. The traveling public has found occasion to say much to the credit of the Southern in its methods of meeting the most serious situation that it has ever encountered and it is one occasion on which the public will be agreed that praise is well placed. In all of its reconstruction work the Southern has depended on its own men and its own crews, on its own brains and its own skill.

COMMENDATION WELL PLACED.

(Charlotte (N. C.), *Observer*, August 7, 1916.)

The general public has shared with the papers in handing praise to the Southern Railway Company for the expeditious manner in which it went about the restoration of traffic without, however, having an adequate idea of the real character of the obstacles that were to be overcome and the manner of overcoming them. The Southern lost five bridges over the Catawba and traffic has been resumed over newly-constructed trestles at all of these points. The most difficult task was across the Catawba near Rock Hill, on account of the topography of the land, the length of the bridge and the rebuilding of piers. But the trestle there was finished last night. Meantime, the Southern has been doing more than the public knows. It was found that none of the five steel spans of the bridge at this place was injured, and while the workmen were engaged in building the trestle, a set of bridge builders was busily at work placing the rescued spans into position, building a permanent bridge

up through the temporary structure, so that within a very short time the temporary trestle is to be torn away and there will be left in its place a permanent steel bridge, an exact duplication of the bridge that was destroyed. None of the commendation that has been handed out for the efficiency of the Southern's construction force has gone amiss.

THE CONQUEST OF ROUND KNOB.

(Charlotte (N. C.) *Oregonian*, August 18, 1916.)

An example of the extraordinary in railroad reconstruction is to be witnessed at the present time between Old Fort and Ridgecrest on the western division of the Southern. Between these two points it is less than five miles air line, but following the windings of the picturesque line around and over the mountains the distance is 14 miles. Every mile of this has to be reconstructed. At some points it has been found necessary to relocate the road-bed and when service is resumed the trains will be carried over a route that is new in some sections. The Southern construction management has been calling for as many laborers as could be secured. At last accounts there were over 3,000 men at work, and it was expected that by the end of the present week this number would be increased to 4,000. The "hands" are divided into squads covering every foot of the line from the small tunnel at the foot of the mountains to the famed Swannanoa at the crest. It is the expectation of the railroad men that this section of the line will be put in condition for the operation of trains by September 15th, but to that portion of the public familiar with the character of the undertaking no disappointment will be manifested in case this expectation fails of fulfillment. The rebuilding of the line to North Wilkesboro was child's play compared to the rebuilding of the line up the mountains from Old Fort to Ridgecrest. At the time the Western North Carolina road was completed it was regarded as the marvel of railroad engineering in the United States. Since then there have been many feats in conquering the mountains by railroad engineers—notably in the case of the Clinchfield road—but the Round Knob engineering yet stands among the greatest achievements in the railroad history of this country. The seemingly impossible feat of running a railroad across the Blue Ridge at this point was accomplished by native talent. Major J. W. Wilson was the engineer and guiding genius. Colonel A. B. Andrews' efficient part in the undertaking has been commemorated in the construction of the Andrews Geyser, an aquatic wonder of the mountains, but Major Wilson's memory lives only in the almost forgotten history of his accomplishment. In the rehabilitation of this wonderful Round Knob line, it might be well for the Southern to establish at some point a token that would keep Major Wilson's name before the public. Some conspicuous boulder might be converted into a Wilson monument.

(Charlotte (N. C.) *News*, August 4, 1916.)

It must be a revelation to President Harrison of the Southern to know that he has in the Carolinas such valuable understudies as General Superintendents Foreacre and Simpson and other officials who, during the time of restoration of the com-

pany's service from flood wrecks and ruin, have brought to the attention of the whole public their eminent fitness for their positions. . These men are entitled to all the praise the Southern's president is showering on them.

[Mr. Harrison's comment on this was that it was no revelation at all: that he has known Messrs. Foreacre and Simpson and the members of their staffs, and has worked with them, too long not to expect of them exactly what they did in this emergency. That is why they have their responsible jobs, and the respect of all who know them.]

WONDERFUL BRIDGE-BUILDING.

(Raleigh (N. C.), *State Journal*, August 4, 1916.)

The Southern Railway was able on Wednesday to operate trains over the Catawba River on the temporary bridge which a big force of workmen were able to construct in about two weeks after the Belmont bridge was washed away, and ten days after the work of rebuilding began. This was a wonderful engineering feat. The bridge is quite a long one, and although only a temporary affair, is sufficiently strong to last a number of years. It is the intention of the Southern to build a two-track bridge here as well as to double-track its lines south of Charlotte. The line from Spartanburg to Asheville will be opened in the course of the next day or so, but a transfer at Saluda Mountain, requiring several hours, will have to be made.

(Wilkesboro (N. C.), *Patriot*, August 3, 1916.)

Our people in this section and along this branch of the Southern Railway are very grateful to the officials of the Southern for the promptness with which train service was restored. All of the members of the local depot and section forces rolled up their sleeves and went to work in earnest to repair the damage wrought by the flood, and the result was highly gratifying to them all, and to the public as well. A task that Superintendent Simpson said would require from 60 to 65 days was thus performed in 12 days.

(North Wilkesboro (N. C.) *Hustler*, August 1, 1916.)

It's said that a grand time took place down on the Southern's line last week when the last stick of rubbish and shovel of mud had been removed from the track between here and Winston—where the forces met—the track-layingest men on earth. General Superintendent R. E. Simpson gave the crowd a speech and dinner, and all in fact had a handshaking with the superintendent, who very kindly thanked the men for their interest in the railroad and getting it back into operation so unexpectedly quick, and told any man present to write to him if he got in tough luck.

(Winston-Salem (N. C.) *Journal*, July 27, 1916.)

We and every person who knows anything of the odds encountered in repairing the line from Donnahaha to North Wilkesboro also take off our hats to the officials of the Southern Railway for the seemingly impossible task of opening up traffic on this road in such a short time. The officials realized that an emergency had to be

met, and they met it with a spirit and determination that commands the highest admiration and respect. A general superintendent can ride in comfort in his private car when conditions are normal, but Mr. Simpson has demonstrated that he can also shovel dirt with the most hardened laborer. The local officials have done the same thing. Because they have appeared as mere laborers in an emergency has raised them much higher in the estimation of the people of this section.

THE SOUTHERN'S FINE WORK.

(Winston-Salem (N. C.) *Journal*, August 5, 1916.)

The people of North Carolina will not soon forget the Southern Railway Company's magnificent work in speedily restoring its lines of traffic which were badly damaged in many sections by the recent flood. But longer than this will they remember the action of the Southern in agreeing to carry free of charge all shipments of supplies from the State Relief Committee to the people of the flood-stricken districts. Although the Southern has been one of the heaviest losers in the flood, the manner in which it has met disaster and its generosity in helping to relieve those who are in distress have won for that company a warm place in the hearts of the people which will bring rich material returns in the end.

(Winston-Salem (N. C.) *Journal*, August 20, 1916.)

"The note of appreciation sent by President Fairfax Harrison to the Southern Railway employees, as a result of their work in repairing flood damages, is none amiss, if the employees in all of the flood sections were as faithful and diligent as they were in this section.

LESSONS FROM THE FLOOD.

(Mount Airy (N. C.) *News*, July 27, 1916.)

The country will learn some things from the flood. One is that we are living from hand to mouth, and that we are a long distance from being self-supporting. We are buying our flour and our meat and a hundred other items from other parts of the country. We have not on hand today in any small town more than a week's supply of food.

We have had it impressed upon us with force what it means to have a railroad in the country. And the promptness with which the railroad officials came to the rescue in the hour of distress should have much to do with creating a better sentiment on the part of the people towards railroads. For a long time there has been too much disposition to "do" the railroad in many ways, especially in damage suits.

When the Yadkin valley was washed away and the country cut off from outside help, General Superintendent R. E. Simpson played the part of a real hero in his effort to get relief by prompt action. Mr. Simpson spared neither money nor flesh and blood to open up the railroad in the shortest possible time. He got out of his special car, put on the clothes of a laboring man and went into the mud along with the others to hasten the work. And he succeeded. He did the work in ten

days that many men would have been a month or more in accomplishing. And his efforts to restore railroad facilities should make a warm place in the hearts of the people of this section for him in the future.

And there is something else that should not be forgotten, and that is the prompt action that is being taken to assist the people who have lost in the flood. The contributions are pouring in, and in a short time sufficient funds will be in the hands of committees to relieve any suffering that is in the land. And after all it may be that the disaster will create in us a larger love for each other, and a more charitable disposition, if it leaves us as a people poorer in this world's goods.

(Rocky Mount (N. C.) *Telegram*, August 8, 1916.)

The difference between a mere money-making organization and a corporation with a heart, and a big one at that, has just been brought into evidence in western North Carolina. The Southern Railway, traversing that whole section with a network of roads, was the heaviest loser of all others by the recent flood, but it didn't deter them a whit; they didn't even pause for a moment to mourn or to talk finances, but officials with working crews were dispatched here, there and everywhere, and the biggest officials with the biggest crews were sent to repair the damage and open the lines where suffering might occur first. And so they labored night and day, knowing no tire whatever, but a consciousness that the Southern Railway must have trains moving quickly, or suffering at points, aided hundreds of others out of their own storehouse, and now they are carrying provisions and supplies gratis to the flood-stricken areas. Its officials have made the road an even greater power for the upbuilding and advancement of Carolina.

(Asheboro (N. C.) *Bulletin*, August 9, 1916.)

The splendid spirit shown by the Southern Railway in the time of distress is certainly commendable. With miles and miles of track washed away and bridges swept before the mighty torrents of the recent flood that swept western North Carolina, the Southern people woke up one morning to find a damage of millions of dollars to its property in every section of the State, and today, less than three weeks since, almost normal train schedules are being maintained all over the system, and the work of reclaiming and rebuilding the road will always be a monument to the energy and efficiency of the officers and employees of the Southern.

THE SOUTHERN RAILWAY SPLENDIDLY MEETS GRAVE SITUATION.

(Atlanta (Ga.) *Georgian*, July 27, 1916.)

The several thousand men, women and children who were marooned on Southern Railway trains during the recent floods in the Carolinas have learned something of a corporation with a soul.

They were cast by circumstances into the midst of great deprivation, anxiety and danger, but their hardships were softened by the most remarkable example of corporate thoughtfulness, extending from the general management down to the humblest employee, that has ever been shown in the South. Everything that could

have been done for their relief and comfort was done by the Southern Railway, according to the testimony of those mountain side marooners.

The new spirit of "Help the Public," fostered so ably by President Fairfax Harrison, has already regenerated the Southern Railway. The exemplification of it in the Carolina floods has won thousands of lasting friends who remember that the motto of all corporations not so many years ago was, "The Public Be Damned."

THE RECORD OF THE RAILROADS.

(Columbia (S. C.) State, July 20, 1916.)

In England, Germany, France, New York, Massachusetts or Pennsylvania, no rainfall, however great, would have washed away railroad bridges and tracks as they have been washed away in the two Carolinas in the last week. Occasionally, at rare intervals of time, a bridge in one of these countries or States may collapse, but there is never a general breaking up of transportation facilities over wide areas.

These countries and States are in development older regions. Population in them is dense, and traffic tremendous. They have had the money to make their railroads impregnable to water pressure. They have built stone bridges where our companies have built of wood or of wood and steel.

Our Southern railroad companies have built remarkably well, when what they have had to build with is considered. Their present average is perhaps 100 per cent better than it would have been after a similar storm 25 years ago.

One fact stands out conspicuously to the credit of the managers and operatives of the railroads in the South, and the public ought not to forget it. It is that during the last week, notwithstanding the scores of wash-outs, the soft and soaked road-beds, the numerous collapsed or weakened bridges and trestles and the utterly demoralized schedules, NOT ONE PASSENGER'S LIFE HAS BEEN LOST IN RAILROAD OPERATION.

It seems to us that this is a wonderful record. It can be explained only on the theory that every trackwalker, every section hand and bridgekeeper, every flagman, conductor, fireman, engineman, dispatcher, division superintendent, general superintendent, manager, and president, has been "on the job," and has had before him that high sense of responsibility implied in President Fairfax Harrison's remark the other day that his Company, in which he included everybody connected with it, felt the "disgrace" of the loss of a passenger's life that might have been avoided but for a human mistake. That is a fine spirit, and it runs through our railroad workers nowadays from flagman to president. It is the kind of pride that makes secure the passenger trusting life and limb to the railroad company. Twenty-five years ago tragic railroad wrecks would have been the inevitable incidents of the fearful rainfall of the last week but the history of it is that, so far, passengers on trains have been SAFER THAN PEOPLE IN THEIR HOMES in some of the stricken districts.

We can't have unshakable bridges and rainproof road-beds right away. There isn't enough traffic to provide the money for them. For them we must wait. The railroad companies have, without exception, improved their roads at a faster rate than their business has increased. Such railroads as the Pennsylvania and the New

York Central had their substantial construction in a period of far higher freight and passenger rates than are permitted in this period. Most of their stone bridges were not built even with two and a half cent passenger fares, but when fares were more costly.

In the light of these things, we wish the PEOPLE would ask themselves whether or not the politician is THEIR FRIEND who advocates, at this time, TWO CENT passenger fares.

While there is not the faintest likelihood of it, or possibility for that matter, it would be better for the people who travel were railroad passenger fares increased rather than decreased, if the greater revenues could be spent in strengthening roadbeds and bridges—in making the lives of the people safer. The events of the last week, we suppose, will silence the ignorant agitation for two cent fares in South Carolina for a time, anyway—though the argument in their favor is as strong now as it ever was. It was always an empty argument—unless the people prefer cheapness to safety.

DESERVE PRAISE.

(Spartanburg (S. C.) *Journal*, July 19, 1916.)

General Manager Paul V. Moore, of the Chamber of Commerce, has written President Fairfax Harrison of the Southern Railway a letter telling him how courteous the road's employees here had been in answering the thousand and one questions that each marooned passenger has asked them. They have displayed most wonderful patience. They deserve praise because many men would have lost their patience under such a fire of questions.

A CORPORATION'S SOUL.

(The Huntsville (Ala.) *Mercury*, August 11, 1916.)

Corporations are said not to have souls, but sometimes when the occasion arises for it, the most of them exhibit a striking verisimilitude of soulfulness. They are generally governed by hard and fast rules that seem to be necessary to the proper regulation of their business and the restraint of those charged with their management and administration. But when the call comes for the relief of suffering humanity of the meritorious sort, most of them respond generously and liberally. For instance, we are told in a dispatch from Washington that President Fairfax Harrison, of the Southern Railroad, notwithstanding the heavy losses his Company suffered as a result of the recent floods in North Carolina, has issued an order authorizing free transportation of shipments from the State Relief Committee comprising supplies consigned for gratuitous distribution among the sufferers from the high waters. The response of the people has been generous, and the action of the railroad makes immediately available and without any expense of administration or of distribution the full amount of the public's contributions for the purposes of relief. It is encouraging to be thus reminded that the touch of affliction and of misfortune still makes the "whole world akin," even the corporations in such circumstances becoming brothers to the rest of us.—*Chattanooga Times*.

THE SOUTHERN'S RECOVERY.

(Birmingham (Ala) News, August 6, 1916.)

The announcement made by the Southern Railway officials yesterday that train service will be restored in part tomorrow on the Asheville-Knoxville and Asheville-Tryon Divisions will be read with intense gratification by the general public. Incidentally, we may remark that in view of the enormous damage suffered by the Southern in the recent storms, even a partial restoration of railway service in the affected regions gives evidence of a marvelous recovery which will stand as a monument to the untiring energy and determination of railroad officials and workers who have lost all thought of self, and who have looked only to the convenience and accommodation of the traveling public. So we can not suppress the thought that out of catastrophe may yet come much good, in that the public in the future will have a closer and more kindly feeling for the Southern Railway, and certainly a higher spirit of appreciation.—*Asheville Citizen*.

SOUTHERN RAILWAY COMPANY.

OFFICE OF THE PRESIDENT.

WASHINGTON, D. C., August 11, 1916.

EXECUTIVE ORDER NO. 76.

TO THE OFFICERS AND EMPLOYEES OF SOUTHERN RAILWAY COMPANY:

In the emergency created by the recent floods our organization has had a new test and has given a new proof of its efficiency. Men of all departments and of all branches of the service have demonstrated again the reason why the management has confidence and pride in them. In saving life and property while the danger was imminent, in promoting the comfort of marooned passengers, in restoring structures and reconstructing track so as to make possible, in the shortest possible period of time, a resumption of service vitally necessary to many isolated communities, and not forgetting the less conspicuous but equally necessary work of assembling and forwarding material, the Southern organization has deserved and won much praise from the public. Those of us who know in detail what the character of the work has been and the difficulties which have been surmounted by sheer courage and trained skill can best appreciate how well that praise has been merited.

Where all have done their duty it would be invidious to single out for special mention even those whose service has been most notable because their opportunity was greatest. I must, then, content myself with thanking you as an organization, but I intend the thanks for each of you who is conscious of deserving them.

In saying this, I have a deep sense of pride in my own membership in that organization, for I do honor to myself in honoring you.

The Company has suffered a hard blow in property loss, but, as none of us is to blame, there is no use in repining. Let us rather gird up our loins for a new effort to make up the losses in the coming year: to repeat the kind of service which has made so great a success of our work during the past two years. Finally, while congratulating ourselves on what has been accomplished, let us not forget that we all owe and cheerfully give a tribute of our highest respect to those brave men who lost their lives in the line of duty at the Belmont bridge.

FAIRFAX HARRISON.

TO THE MEMORY

OF THE BRAVE MEN WHO GAVE THEIR LIVES IN THE
PERFORMANCE OF DUTY TO SOUTHERN
RAILWAY COMPANY IN THE
FLOODS OF JULY, 1916

H. P. GRIFFIN

J. N. GORDON

C. S. BARBEE

C. W. KLUTZ

J. F. HODGES

*DANIEL HEATH

*ANDREW SCOTT

*TOM ASHWOOD

*TOM DAVY

*SLOAN ADAMS

*WILL FERGUSON

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"YOUR SURVIVING COMRADES WHO SHARED
THE RISK SALUTE YOU"

PRESS OF BYRON S. ADAMS
WASHINGTON, D. C.
1917

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Southern railway company
The floods of July

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